PHONOLOGICAL VARIATION IN JAKARTA INDONESIAN: AN EMERGING VARIETY OF INDONESIAN

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PHONOLOGICAL VARIATION IN JAKARTA INDONESIAN: AN EMERGING VARIETY OF INDONESIAN

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This study examines the (morpho-)phonological variation of Jakarta Indonesian (JI) spoken in the capital of Indonesia. On the basis of ancillary information, we assume that JI developed from contact between Standard Indonesian (SI) and Betawi with influence of Javanese. The patterns of variation found in naturalistic speech corpora from three generations of speakers of JI (Wallace, 1976; Gil et al., 2015) indicate that JI is emerging as a new variety of Indonesian. These corpora give evidence of the changes that are taking place, their direction, and how they are adapted by both genders, and the various age and social groups represented in the corpus. These facts have implications for understanding the social structure of the community.

There are three variables under investigation. Chapter Two examines variants with final [-a] ~ [-e] in function words, such as in [apa] (SI) ~ [ape] (Betawi) ‘what’, Chapter Three investigates variants with final [Ø] ~ [-h] ~ [-ʔ] in function words, such as in [lagi] (SI) ~ [lagih] (Betawi) ~ [lagiʔ] (Betawi) ‘more/progressive’, in content words, such as in [sapi] (SI) ~ [sapiʔ] (Betawi) ‘cow.’ Chapter Four studies the patterns of variation of the active verbal prefix focusing on the variation with voiced obstruent initial roots including [ŋə-] and variants with nasal assimilation, as in [ŋə-bəli] (associated with Betawi) ~ [m-bəli] (associated with Javanese) ‘to buy.’ The high occurrences of word-final [-a] in Chapter Two and word-final [Ø] in Chapter Three show evidence of strong influence of SI. The high occurrences of the variants with

nasal assimilation in active verbal prefix show evidence of Javanese influence.

The observed patterns of variation are primarily conditioned by social factors, namely speakers' gender and level of education. The increased use of SI forms in Chapters Two and Three and Javanese form in Chapter Four are led by females and speakers of higher educational background. The increased use of these forms can be seen as a change in progress influenced by the varieties that have more prestige: (1) SI, as the standard variety; (2) Javanese, which is associated with a group with prestige in Jakarta.

BIOGRAPHICAL SKETCH

Ferdinan Okki Kurniawan was born and grew up in Jakarta, Indonesia. He is a native speaker of Indonesian. He received his bachelor's degree in English Literature from Christian University of Indonesia, and received his master's degree in English Linguistics from Eastern Michigan University, MI.

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CHAPTER ONE

INTRODUCTION

1.0. Introduction

This dissertation is a study of linguistic variation and change in Jakarta Indonesian (JI), a variety of Indonesian spoken in Jakarta, the national capital of Indonesia. This study is devoted to investigating the development of JI by examining certain phonological and morpho-phonological patterns of variation, using large-scale naturalistic speech corpora from three generations of speakers.

As the world's largest islands nation, Indonesia consists of more than 13,000 islands spread between mainland Southeast Asia and the Australian continent, and spanning the Pacific and Indian Oceans. With more than 230 million people (UN Statistic Division, 2015), Indonesia is the fourth most populated nation in the world (after China, India, and the United States). The nation consists of hundreds of ethnicities and languages. Simons and Fennig (2018) reported that there are more than 700 living languages in Indonesia. This means that around 10% of the world languages are spoken in Indonesia, and makes Indonesia the nation with the greatest number of living languages after Papua New Guinea (with more than 800 languages). Its linguistic diversity makes Indonesia an ideal place for studying contact between the existing linguistic varieties.

My study offers a case study of linguistic contact between Betawi and Standard Indonesian (SI) that together contribute to an emergence of a new variety of Indonesian called Jakarta Indonesian. The focus of this dissertation is to observe the relationships between JI, SI, and Betawi, three closely related varieties that originating from Malay, as schematized in Figure 1.1.

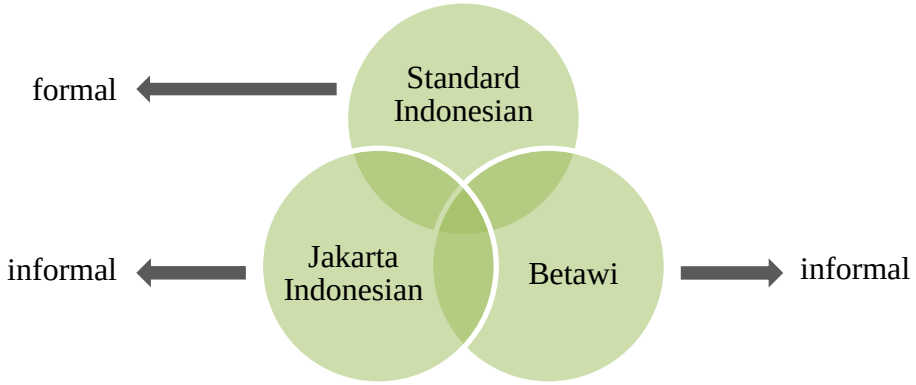


Figure 1.1. The relationship between JI, SI, and Betawi.

In terms of styles, SI belongs to a formal style, while JI and Betawi belong to informal ones. The main research question is how we can use investigation of linguistic data to provide a more systematic understanding of this relationship, especially in the area where SI is in contact with Betawi, contributing to the formation of JI as a new variety.

To address these relationships, we need to start with background on Malay and these three varieties.

1.1. Background

Malay is a language that belongs to the Austronesian family. It is spoken mainly in Indonesia, Malaysia, Singapore, Brunei, and southern Thailand. Varieties of Malay are spoken throughout the region and Malay is one of the official languages in Malaysia and Brunei. In what is now Indonesia, local vernacular varieties are spoken in Sumatra and Kalimantan. Malay has also served as a lingua franca throughout the archipelago for many centuries (Sneddon, 2003). JI, SI, and Betawi originated from Malay but their historical development is different from one another. As discussed below, Malay is the basis of the development of SI. SI is spoken throughout the Indonesian archipelago as an official language, while JI and Betawi developed locally as

vernaculars in Jakarta. The development of Betawi, JI, and SI are further discussed in 1.2, 1.3, and 1.4 respectively.

To give a clear sense of where JI, Betawi, and the surrounding local languages are spoken, let us observe a linguistic landscape of the island of Java in Figure 1.2.

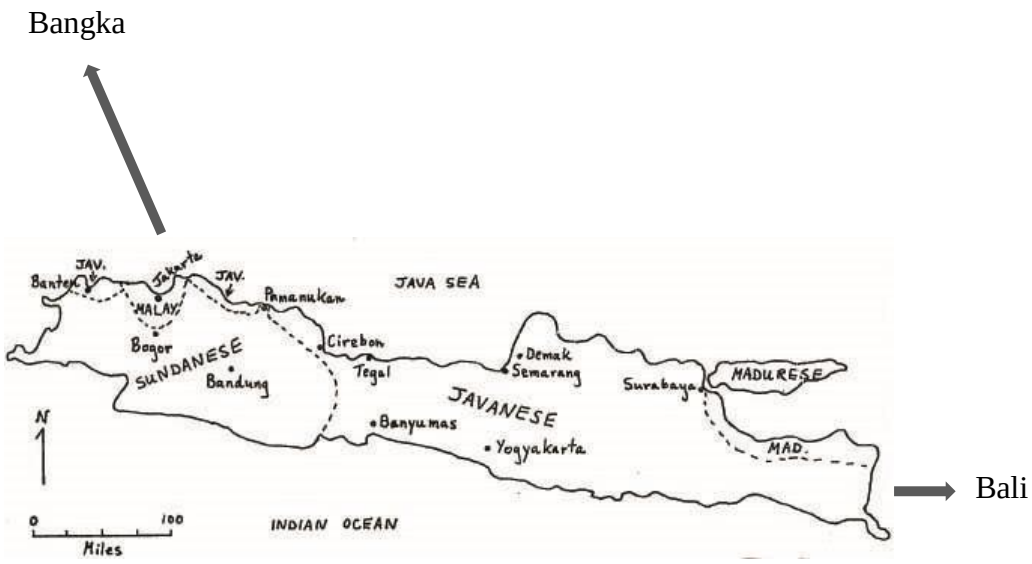


Figure 1.2. Linguistic landscape of Java (Wallace, 1976:24), as cited from Nothofer (1973: maps 1-3).

As we can see on the map, there are a number of language varieties spoken on the island of Java. Betawi (termed by Wallace as Traditional Jakarta Malay) is spoken in Jakarta, and JI (termed by Wallace as Modern Jakarta Malay) is also spoken in Jakarta. Both varieties are surrounded largely by Sundanese speaking areas in West Java. Javanese is mainly spoken in Central and East Java and partly northwest Java. Madurese is spoken in the island of Madura and along the coastal region of northeast Java. It should be noted here that Balinese and Bangka Malay play important roles in the emergence of Betawi, which will be discussed later in 1.2. Balinese (not shown on the map) is spoken in Bali, an island just east of Java. Bangka Malay (also not shown

on the map) is spoken in the northwest of Java or just east of Sumatra.

This linguistic diversity means most Indonesians grow up as multilinguals exposed to several languages in their daily life. Interestingly, however, the population of Jakarta currently is increasingly becoming monolingual because the younger speakers are not speaking their parents' local languages any more. Sneddon (2006:3) explicitly stated: "Many millions [of Indonesians], especially in Jakarta, are now essentially monolinguals, speaking only Indonesian." In agreement with Sneddon, Ravinandrath and Cohn (2014) reported that even "big" languages of Indonesia, those spoken by millions of speakers, such as Javanese and Sundanese,[1] are not free from the risk of language endangerment as the younger speakers shift away from their parents' local languages. The younger generation of speakers increasingly uses Indonesian more than their local languages, causing a more general shift from multilingualism to monolingualism. See also Kurniasih (2006) for a case study of younger Javanese speakers shifting to Indonesian.

As there is a shift away from the parents' local languages, new varieties of Indonesian are emerging as the result of language contact between SI and the local languages. In daily life, these emerging regional varieties of Indonesian are used side by side with the local languages and SI, creating complex multilingual situations.

My dissertation offers a study where contact has and is taking place when people from regional areas of Indonesia move and settle in the Jakarta metropolitan area. This contact leads to language change and language shift. This study examines speakers in Jakarta who were the children of parents who migrated to Jakarta after Indonesian independence in 1945 and their descendants. These speakers have shifted away from their parents' homeland vernaculars and have formed a new variety called Jakarta Indonesian (JI).

[1] Simons and Fennig (2018) reported the total speakers of Javanese to be 84,377,600, while Sundanese speakers are around 34,000,000.

To understand these patterns of usage and shift, we need to consider that most speakers have different linguistic styles that they use. When the styles are quite distinct, this has been termed by Ferguson (1959) as diglossia. To give a clear sense, the concept of high variety (H) and low variety (L) introduced by Ferguson, as used by Sneddon (2006) in the Indonesian context, is schematically mapped into the linguistic situation that has come into being as used by parents and children generations in Jakarta.

Table 1.1: H and L varieties used by generations of parents and children

Varieties	Generation of Parents	Generation of Children
H	High variety of their local language; Standard Indonesian	Standard Indonesian
L	Low variety of their local language	Jakarta Indonesian

As schematized in Table 1.1, the generation of parents uses the high variety of their native language and SI as their H variety. The H variety of their native language is used when they talk among the people who speak the same native language as them. However, the H variety of the native language is not used in formal settings, such as office or school. Rather, they use SI depending on their level of mastery. Interestingly, their children do not use the high variety of their parents' native languages but use only SI as their H variety.

In colloquial settings, the generation of parents uses the L variety of their local language but their children do not use the L variety of their parents' local language. There must be another (new) L variety used by this new generation of speakers. This new variety is called by some scholars as Jakarta Indonesian (Grijns, 1991; Poedjosoedarmo, 1982), Colloquial Jakartan Indonesian (Sneddon, 2006), or Modern Jakarta Malay (Wallace, 1976). However, these previous studies do not offer a

comprehensive understanding of how JI emerged, developed, and is widely being used nowadays by Jakarta inhabitants.

As explained above, the new Indonesian varieties including JI emerged in Indonesia have resulted from the contact between the local languages and SI. The case of JI is an example of SI contact with a local variety, namely Betawi, an older variety that has been spoken in Jakarta for approximately two centuries. JI developed from Betawi, a variety of Malay that was brought to Jakarta early on, and was heavily influenced by Portuguese, Dutch, Arabic, Chinese, and the local languages with which it was in contact, such as Sundanese, Javanese, and Balinese (see 1.2, where the emergence of Betawi is discussed).

To begin with, an account of how JI forms a dialect continuum with Betawi and SI will be given. These three varieties are mutually intelligible with one another, but they are different in terms of their linguistic characteristics and the nuances (sociolinguistic meanings) they convey. However, the lack of understanding of the relationship between them has led scholars to consider them as the same variety. This lack of understanding is in regard not only to the relationship between SI and JI but also to the relationship between SI and other regional varieties of Indonesian. JI and other regional varieties of Indonesian are often simply considered as Indonesian or *Bahasa Indonesia.* If a speaker of JI or other regional varieties of Indonesian is asked to self-report their own speech, they might only report that they speak Indonesian. The fact is that these regional varieties of Indonesian, including JI, are significantly different from SI and from one another in many aspects. SI is the national language of Indonesia and is cultivated by the National Language Center formed by the Indonesian government. This standard variety of Indonesian is used in formal settings, such as in classrooms and formal office meetings throughout Indonesia.

The difference between JI and Betawi also needs to be addressed since these

two varieties are often categorized as a single variety. Sneddon (2003, 2006) mentioned that in the modern era, Betawi is a vernacular spoken by a small minority of inhabitants of Jakarta, limited only to Betawi communities. Non-Betawi speakers who were born and grew up in the city developed a new emerging variety, JI, which has linguistic features that are significantly different from Betawi. A younger generation of Betawi speakers is shifting from Betawi, their parents' vernacular, to JI. In his 2006 study, Sneddon observed that JI is a sign of belonging to the educated higher and middle classes. JI is identified by the occurrence of certain variants of particular linguistic variables as opposed to others (as later described in Chapters Two, Three, and Four), so that the choice of these variants that marks JI also marks a speaker as being of a higher class. One can use more or less of higher-marking variants and thus gives a stronger or weaker indication of his or her status. My current study finds that JI is increasingly being used by the younger speakers regardless of their socio-economic classes nowadays.

As a more prestigious colloquial variety, JI has been widely influential in other regional varieties of Indonesian throughout the archipelago, while Betawi is more locally concentrated and has very limited influence outside of Jakarta, as discussed in Sneddon (2006).

There is a lack of comprehensive studies that address the difference between JI and Betawi as noted by Grijns (1991) and others. Grijns states:

> The real problem to be dealt with is the status of Jakarta Malay [Betawi] in relation to Indonesian, particularly Jakarta Indonesian. Unfortunately, a comprehensive study of colloquial Indonesian as spoken in Jakarta does not yet exist, and there is not even a reasonably representative corpus of texts available. (p. 14)

While there are some systematic studies of Betawi and SI, comprehensive studies of JI are far from adequate. Therefore, it is still difficult to find thorough and accurate descriptions that explain how JI differs from Betawi and SI.

To better understand the difference between these three varieties, a socio-historical linguistic overview of Betawi, SI, and JI is needed. The following sections are devoted to sketching a chronological description of the emergence of Betawi, the early development of SI, and the emergence of JI. The description will serve as the basis of analyses and discussions in this thesis. Let us now first discuss the emergence of Betawi.

1.2. The emergence of Betawi

This section summarizes the emergence of Betawi based on previous studies of this variety. As discussed by Muhadjir (1981), based on evidence from lexical items, Kahler's (1966) study shows that Betawi is a dialect of Malay with influence from Balinese, Javanese, Sundanese, Chinese, Arabic, Portuguese, and Dutch.

Nothofer (1995) proposed that the origin of Betawi is Bangka Malay. Based on the phonological, lexical and semantic evidence, he suggested that the closest relatives of Betawi are the southwestern dialects of Malay, in particular, the dialect of Bangka, spoken on an island just east of Sumatra. In addition to that, a Portuguese-based creole, which had originally been spoken throughout the coastal regions of Africa and India, was also used in Jakarta until the eighteenth century (Castle, 1967; Milone, 1966), as discussed in Ikranagara (1980).[2] This Portuguese-based creole must have been used alongside with Malay in multilingual settings in Jakarta at that time.

[2] The Portuguese-based creole is extinct today. Interestingly, Wolff (p.c.) mentioned that this variety was most probably still spoken until around eighty years ago by a small community near Tugu church, Jakarta.

Later, the increase of Dutch superiority in the archipelago, including Jakarta, restricted other European traders in this region (Dixon, 1991). The new trading route established by the Dutch via the Sunda Strait to the Moluccas rather than via Malacca made Jakarta serve as an important and busy trading port at that time (Dixon, 1991). This situation led to an increase in population and the use of Malay as a lingua franca in Jakarta and to the decrease of the importance of the Portuguese-based creole in Jakarta.

The decreased use of the Portuguese-based creole and its virtual disappearance in the middle of eighteenth centuries caused Betawi[3] to emerge as the only lingua franca, as suggested by Castle (1967) and Milone's (1966). By the mid-nineteenth century, Betawi fully developed as a new and distinct variety (Ikranagara, 1980). Grijns (1991) mentioned that Betawi started receiving strong influence from the local languages such as Javanese, Sundanese, and Balinese in 1828 when the Dutch colonial authority no longer assigned Jakarta inhabitants into segregated ethnic groups,[4] which led to increasing inter-ethnic interactions. During this process, the speakers had gradually lost their collective memory of their linguistic and ancestral origins and formed a new ethnic and linguistic community called Betawi.

Tadmor (2017) reports that the first official written record that mentioned name 'Betawi' was when Husni Thamrin, a Betawi and National figure, created the *Kaum Betawi* (Betawi Community) organization in 1923. Additionally, Castle (1967) mentioned that the first appearance of Betawi as a distinct ethnic category was recorded in the 1930 census administered by the Dutch colonial government. In this

[3] The name 'Betawi' comes from 'Batavia'. Jakarta was named 'Batavia' (Batavi: ancient Germanic tribe) by Dutch colonials.
[4] In present-day Jakarta, the ethnic segregations created by Dutch colonial authority can still be seen in several district names, such as Kampung Melayu 'Malay village', Kampung Bali 'Balinese village', Kampung Ambon 'Ambonese village', etc.

census, the Betawi were reported to constitute 50% (778,953 persons) of the Jakarta population at the time.

Next, we turn to a brief review of SI, especially in relation to the issue of language planning.

1.3. The development of Standard Indonesian

Malay was a lingua franca in Indonesia from the earliest times and was the language of print media throughout the archipelago from the late nineteenth century. During colonial times, Malay-language medium schools were established throughout the Indies, and Dutch linguists wrote grammars that standardized the language (based largely on the Malay dialects of Riau). It was the language of education and early twentieth-century literature and other print media throughout the archipelago. It was the language that in 1928 was declared to be the national language of a free Indonesia, and was renamed *Bahasa Indonesia* — Indonesian. After WW II, when Indonesia declared independence in 1945, it became enshrined in the Indonesian Constitution, Chapter XV, Article 36. After independence, the *Pusat Bahasa* (National Language Center) was established. This institution determined the grammar and vocabulary of SI and in fact had a strong influence in how SI has developed since that time.

The spread of SI as the national language, that is nowadays mastered by almost the entire Indonesian population across the archipelago, is due to the rapid development of the programs of *wajib belajar enam tahun* ‘compulsory six years primary education’ and literacy in Indonesia. Furthermore, the Soeharto government extended access to primary education to all areas of Indonesia, making it available to the entire population. In addition, the *Pusat Bahasa* (National Language Center) has been influential thereafter in the development of SI, most particularly in the realm of the lexicon. During the process of standardization, SI has developed into an

independent new linguistic system that is different from other Malay varieties, such as Papuan Malay and Manado Malay, in many ways.

In its early development, SI, however, did not directly replace the 700 hundred local languages spoken in Indonesia. Rather, SI was used alongside those local languages. SI is widely used in formal settings, such as in educational, governmental, and professional contexts, while the local languages are used as daily vernaculars. SI is used alongside local language as a code, where SI functions similarly to the H of diglossia and the local language as the L. This contact between SI and local languages has created new regional varieties of Indonesian in almost all regions. This happened in Central Java as discussed in detail in Chapter Three of Wolff and Poejdosoedarmo (1982). The contact between SI and Javanese can be further observed at the level of phonetics and phonology, as examined by Adisasmito-Smith (2004). New varieties of vernacular Indonesian have developed elsewhere, as well, in Sumatra, Papua, Bali, and other places. Unfortunately, however, as Sneddon (2006) reports, language planners seem to have little interests in providing descriptions of these new vernaculars. Moreover, research undertaken about local varieties of Indonesian is still very limited, even though linguists began to investigate them in the late 1990s and the early 2000s. (See Gil, 1994 on Riau Indonesian, Ewing, 2005 on colloquial Indonesian, and Englebretson, 2003 on colloquial Indonesian of Central Java, as cited in Sneddon, 2006.)

Systematic studies of the current use of SI and local languages have been conducted by Wolff and Poedjosoedarmo (1982), Nababan (1985), and Steinhauer (1994), but less is known about regional varieties of Indonesian, such as JI. My goal is to provide a careful and systematic study of how a regional variety of Indonesian has emerged in Jakarta. The investigation is based on a case of linguistic contact between SI and a local lingua franca that has been spoken as a vernacular in Jakarta for more

than two centuries, namely Betawi, creating a new variety of Indonesian, called Jakarta Indonesian. To understand the development of JI, let us now turn to an overview of JI in the next section.

1.4. Jakarta Indonesian as a new emerging variety

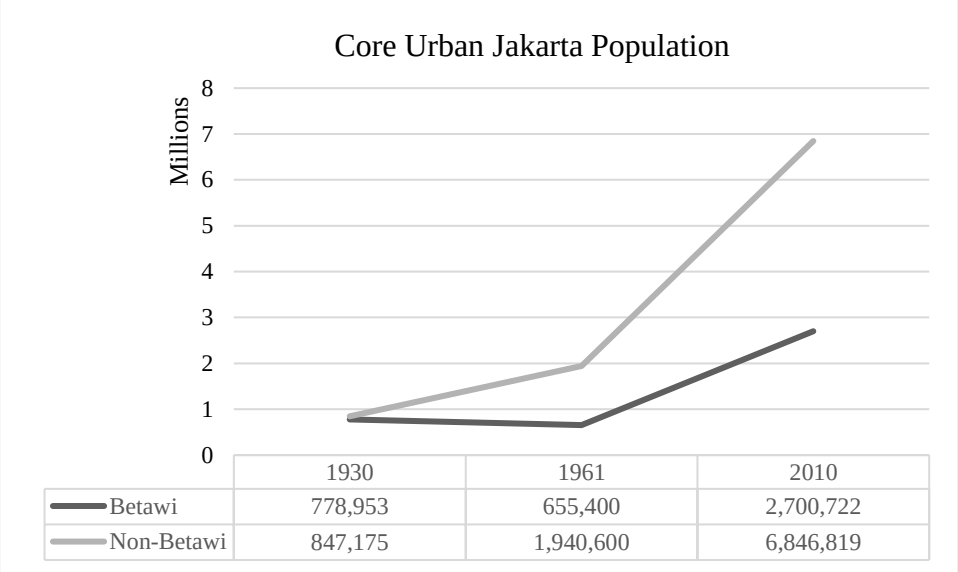
As a vernacular, JI (as opposed to Betawi) emerged after Indonesia gained independence at the end of World War II, with a huge influx of immigrants to Jakarta, the capital. As the national capital and a major business center, Jakarta attracted economic migrants from other regions of Indonesia. The number of immigrants has risen dramatically since then, causing the city to become one of the most populous urban areas in the world (Jakarta Population, 2017). According to the 2010 census (Badan Pusat Statistik, 2018), the number of Jakarta residents has reached 9,988,495 in the urban core area of 664 km^2 and more than thirty millions in the greater metropolitan area of 6,392 km^2. The population density is 14,469 people per square kilometer, in the urban core area, and 4,383 people per square kilometer, in the greater metropolitan area. Jakarta's high population density creates extensive inter-ethnic and linguistic interaction among the inhabitants of this linguistic melting pot.

The sharp increase of immigrant population can be observed when we compare it with the previous census. Based on the 1961 census, Castle (1967:185) estimated the number of Jakarta indigenous residents to be around 2,596,000.[5] They consisted of 655,400 Betawi and 1,940,600 non-Betawi, first and second generation people originating in the various ethnic groups of Indonesia: Javanese, Madurese, Sundanese, Acehnese, Batak, and many others. This suggests that within less than two decades after Indonesia's independence in 1945, more than half of the population of Jakarta was immigrants or children of immigrants. Castle also reported that the highest

[5] If foreigners are included, Castle (1967:185) estimated that Jakarta had about 2,906,500 residents.

number of immigrants were from West Java, Central Java, East Java, South Sumatra, followed by other provinces throughout Indonesia.

The estimates of the Jakarta population based on the census in 1930, 1961, and 2010, are provided in Figure 1.3. The data from the 1930 and 1961 census are based on Castle's (1967:166, 185) study, and the data from 2010 census are based on Ananta et al. (2015:106).



	1930	1961	2010
Betawi	778,953	655,400	2,700,722
Non-Betawi	847,175	1,940,600	6,846,819

Figure 1.3: The census in 1930, 1961, and 2010 in Jakarta. The x-axis shows the years of the census and the y-axis displays the population in millions. The grey line exhibits the non-Betawi population, and the black line presents the Betawi population. The table provides the numbers of Betawi and non-Betawi population.

In Figure 1.3, Non-Betawi people can be considered as people who were born in other provinces and moved to Jakarta, and their descendants who were born and grew up in Jakarta. Based on the 1930 census, we can observe that there were also non-Betawi people resident in the city and their numbers (847,175) are roughly similar to the Betawi population (778,953). Interestingly, the census in 1961 and 2010 shows a sharp increase of non-Betawi population, as presented by the grey line. This tells us that right after independence in 1945, there were indeed big waves of migrations into the

city.

The immigrants who arrived in and around 1945 were from various ethnicities, speaking their own local languages. The second generation of these immigrant families has been forming a new linguistic variety, shifting away from their parents' local vernaculars. This new variety was later called Jakarta Indonesian (as we do here) by some scholars; others termed it Modern Jakarta Malay or Colloquial Jakartan Indonesian, as discussed above.

Let us now consider a more detailed example of someone who migrated from Central Java, where Javanese is primarily spoken, to Jakarta, a distance of 450 km (280 miles), as illustrated in Figure 1.4.

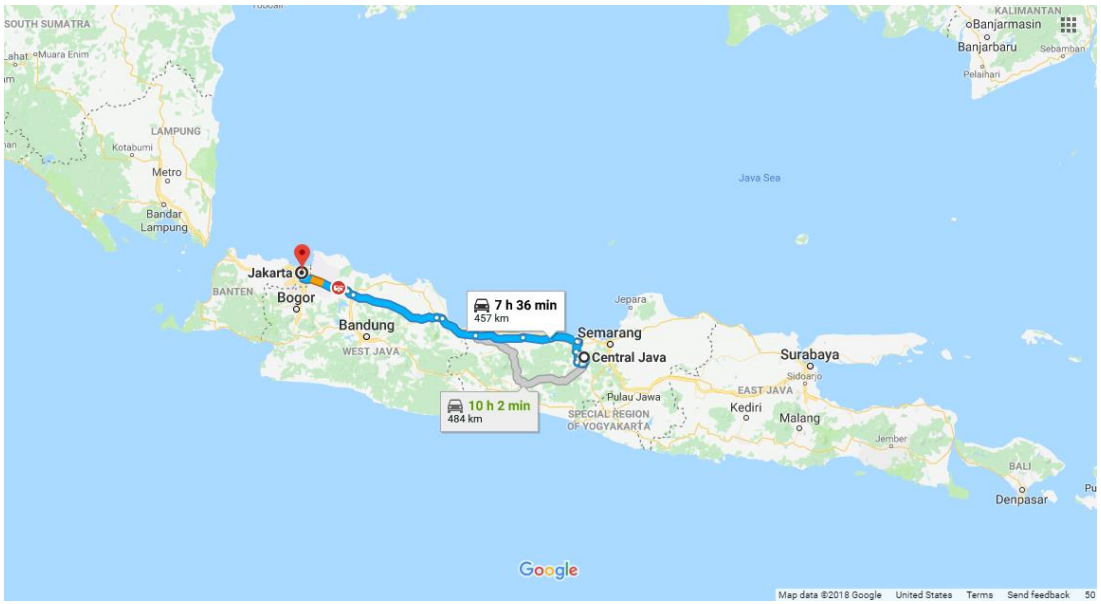


Figure 1.4: Distance between Central Java and Jakarta. Map Data ©2018 Google.

As studied in detail by some linguists, such as Robson (2002), Errington (1988), Wolff and Peodjosoedarmo (1982) among others, Javanese has patterns of hierarchical speech level system depending on the degree of respect felt by the speaker to the interlocutor. This degree of respect depends on the social status of the

interlocutor and the intimacy between speakers and the interlocutors.

According to Wolff and Peodjosoedarmo (1982), Javanese, as spoken in Central Java has three speech levels. They are High Javanese (*Kromo*), Low Javanese (*Ngoko*), and Middle Javanese (*Madyo*). High Javanese (*Kromo*) is the refined form that is used when speakers talk to interlocutors of higher status, such as teachers and older persons. Low Javanese (*Ngoko*) is the unrefined form that is used when speakers are quite familiar with interlocutors, or when interlocutors are children. Middle Javanese (*Madyo*), which is a cline that can be closer or further from *Kromo*, is used for working-class people or not quite of the status to receive *Kromo* but not intimate. Let us now consider the use of Javanese in relation to the issue of the linguistic shift among the immigrants and their descendants in Jakarta.

We could estimate at least three or four generations of speakers have been speaking JI since the end of WW II to the present time, assuming roughly twenty years apart between generations.[6] To give a clear sense, the example of a Javanese speaker coming from Central Java to Jakarta as an immigrant given in Table 1.1 above, is further developed in Table 1.2 describing varieties spoken by each generation.

Table 1.2: H and L varieties as spoken by each generation

Generation	Description	Varieties	Immigrants and JI native speakers	Javanese speakers (non-migrants) in Central Java	Betawi speakers (non-immigrants)
0	Immigrants who came to Jakarta around 1945	H	High Javanese, Middle Javanese, (SI)[7]	High Javanese, Middle Javanese, (SI)	Betawi, (SI)
		L	Low	Low Javanese,	Betawi

[6] We can estimate around thirty to thirty-five years for a generation which implies marriage between these ages. The twenty-year division in my study is not a full generation but is only a partial generation because our available corpora show groups that are only twenty years apart, as elaborated further in 1.8.
[7] Parentheses indicate: use on occasion or in the early formation of the variety.

			Javanese, Middle Javanese	Middle Javanese	
1	Speakers who were born between 1945-1960	H	High Javanese, Middle Javanese, (SI)	High Javanese, Low Javanese, (SI)	(SI)
		L	Middle Javanese, Low Javanese, (JI)	Middle Javanese, Low Javanese	Betawi
2	Speakers who were born between 1960-1980	H	(High Javanese), (Middle Javanese), SI	High Javanese, Middle Javanese, SI	(SI)
		L	(Middle Javanese), (Low Javanese), JI	Middle Javanese, Low Javanese, the local variety of Indonesian	Betawi
3	Speakers who were born between 1980-2000	H	SI	SI	SI
		L	JI	Low Javanese, the local variety of Indonesian	Betawi, JI
4	Speakers who were born in early 2000	H	SI	SI	SI
		L	JI	Low Javanese, the local variety of Indonesian	JI

The initial generation referred to here as generation ‘0’ moved to Jakarta around the time of independence. As mentioned above, after independence, the

government of Indonesia decided to make Jakarta the national capital. The economic growth of the city attracted people from various parts of Indonesia. In the case of Javanese immigrants, High Javanese *Kromo* was used as the H variety, and Low Javanese *Ngoko* was used as the L variety. The non-migrant Javanese speakers in Central Java used the same varieties as Javanese immigrants, as illustrated in column five. Betawi speakers in Jakarta in column six spoke their own local varieties among themselves.

The first generation '1' in Table 1.2 is speakers who were born between about 1945 and 1960. These speakers were the children of the first migrants described before. For the formal register, SI (indicated with parentheses) was on occasion used by these three groups of speakers, but this was the SI of the time, which in many respects is somewhat different from the SI of the 2000s. Regional languages were still used in informal situations. I assume that the early formation of JI (indicated with parentheses) began from here.

The second generation '2' represents the speakers who were born between about 1960 and 1980. With the increased use of SI in formal situations, High and Low Javanese were less used by this generation in Jakarta. In Table 1.2, this is indicated with parentheses. The use of SI in formal settings also began to increase across Indonesia, including among Javanese speakers and Betawi. As a vernacular, JI was established by this generation as a new and independent linguistic system, while Betawi was still used very commonly by Betawi community. Data presented by Wallace (1976) exhibits this phenomenon. In addition to this, regional varieties of Indonesian emerged throughout Indonesia.

The speakers who were born between about 1980 and 2000 are considered the third generation of JI speakers in Table 1.2. More and more of the speakers in this group are monolingual Indonesian speakers (i.e., they speak JI and SI), and more and

more speakers from the ethnic Betawi group are speaking JI and SI. SI is used in formal contexts, while JI is used in colloquial settings. The same situation also applies to the fourth generation of JI speakers. The situation above is analogous for speakers of other languages who moved to Jakarta, except that the degree of language loyalty is not the same for all ethnic groups. Some groups show greater language loyalty than others.

Wallace's (1976) study focuses on generation 1, in which he offers a definition of Jakarta Indonesian speakers based on their ethnic classification. The ethnic classification used by Wallace is now used in this current study. Let us see how Wallace's ethnic classification is associated with the description of generations illustrated in Table 1.2 above.

Wallace had extensively studied speakers of Betawi and JI in the early and mid-1970s. The JI speakers in his study are mostly adults between 18 and 29 years old. That means that these speakers were born in Jakarta around 1945 and 1960. These speakers are represented as generation 1 in Table 1.2 above. Their parents' generation, who are represented as generation 0, were immigrants that came and settled in Jakarta after independence in 1945. Interestingly, Wallace reported that it was very difficult to find speakers who are above 30 years old—i.e. generation '0' in Table 1.2, who were born and grew up in Jakarta, but not of Betawi ethnicity. Based on this fact, Wallace classified Betawi (Traditional Jakarta Malay) speakers as any persons who were born and grew up in Jakarta and their parents are Betawi. He classified Jakarta Indonesian (Modern Jakarta Malay) speakers as any persons who were born and grew up in Jakarta, but their parents are not Betawi. On that account, I apply his ethnic classification method to my current study.

The description of each variety spoken by each generation in Table 1.2 illustrates how JI has developed and reached a high level of language vitality within

only a few decades. Sneddon (2006) mentions that JI has become a standard colloquial form of Indonesian spoken by educated and middle-class people of Jakarta. The second generation or native-born speakers of JI and also those of generation '0' who are the middle and upper class, came to see Betawi as an indication of working class membership and this induced them to abandon forms specific to Betawi—i.e., move towards JI.[8]

Sneddon also points out that JI is different from other regional varieties of Indonesian in terms of its geographical patterns of influence. JI has not only been used locally by the people of Jakarta, but it has been widely influential throughout the archipelago, while other regional varieties of Indonesian are not of nation-wide influence. If there are any regional varieties of Indonesian that spread outside its local region, the influence might spread to adjacent areas but it would not be nationwide. The prestige of JI has caused it to become more easily absorbed into other regional varieties of Indonesian. Further, the rapid spread of JI has been furthered by the expansion of broadcasting (especially TV), printed media, people traveling back and forth from regional cities to Jakarta, and recent internet use.

Specifically, in Jakarta, it seems that at the beginning of the twenty-first century JI is replacing Betawi which had been a lingua franca in Jakarta for more than two centuries. Betawi is still spoken by the older generation of the Betawi population, while the younger generation has shifted to JI. The Ethnologue EGIDS number for Betawi is 6b-7, which means this variety is "in trouble". Ethnologue states that "the intergenerational transmission is in the process of being broken…" (Simons and Fennig, 2018).

Thus, monolingual JI speakers in Jakarta are nowadays rapidly increasing, leaving behind their parents' local languages. At the same time that SI has replaced

[8] This is an assumption that logically follows from Sneddon's statement but it has not been tested.

formal styles of local languages, JI has become a vernacular spoken in Jakarta. Our goal here is to offer a careful and systematic study so that the findings can help us to have a better understanding of how JI emerged and developed.

1.5. Shift and contact-induced change in Jakarta Indonesian

The chronological emergence and development of JI we have discussed so far involve language shift, contact, and change. For this reason, we need to briefly review the relationships between these three types of linguistic interaction. Holmes (2013) noted that the main driving force of language shift is mostly non-linguistic factors such as economy, politics, demography, and others. In addition, Mufwene (2002) argued that language shift is a consequence of speakers' adaptation to their socio-economic ecologies. He also states that language shift can sometimes result from language contact, where a language is influenced by another. The shift takes place when there is no stable and sustained bi- or multilingualism—i.e., two varieties cannot live side by side. In most cases, the process is then followed directly by language loss.[9]

Besides language shift and loss, Mufwene (2002) also mentioned that another outcome of language contact is the emergence of new varieties. Additionally, he suggested that despite similar patterns among them, every case of linguistic contact is unique and different from one place to another. The emergence of JI is an interesting phenomenon: a new variety as an outcome of language contact that takes place in a context of language shift.

In the JI case, language shift took place when the second generation of JI speakers no longer used their parents' local languages, e.g. shifting away from Low Javanese to JI and High Javanese to SI. The socio-economic context in which the JI speakers live is no longer the same as their parents' generation. Their linguistic shift is

[9] See Cohn and Ravinandrath (2014) for current issues of language loss in Indonesia.

an example of an adaptive response to their survival in a new socio-economic context that is different from their parents' generation. In the example given, the use of Low and High Javanese as their parents' varieties in Central Java, is not suitable for the socio-economic context in Jakarta. The chance of achieving better socio-economic goals is higher if they speak JI and SI instead of Javanese or other local languages.

Interestingly, the shift from the parents' local languages did not immediately cause the second generation to pick up the existing vernacular, namely Betawi. Instead, they created JI as their new vernacular through a process of linguistic contact between Betawi and SI. Using only Betawi as their vernacular does not give them socio-economic benefits, as Betawi is commonly associated with the indigenous minority communities in Jakarta,[10] as pointed out by Sneddon (2006) and Wallace (1976). It should be noted here that although Betawi might be primarily used among lower working class, Betawi does give an aura of friendliness and brotherhood. There is this tension between the need for intimacy and the need for prestige so that JI developed from SI as a code with an admixture of forms that the community recognizes as Betawi, but nevertheless can be perceived to be something other than Betawi.

Using JI, as a complex blend of Betawi and SI, gives the inhabitants of Jakarta more advantages than merely using Betawi, as their vernacular. In addition, some linguistic aspects of SI that are blended in JI may function as a social mark of a speaker's educational attainment.

A normal outcome of language contact is language change, and in the case of JI, we have seen so far that language contact has resulted in the linguistic shift and the emergence of new varieties. It should be noted though that not all cases of language

[10] As pointed in 1.4, language loss is a consequence of language shift. The "in trouble" status of Betawi based on EGIDS number on Ethnologue is discussed in 1.4. Moreover, Sneddon (2006) mentioned that the younger speakers of Betawi are shifting to JI.

contact result in language change. As discussed by Ravinandrath (2015), Poplack and Levey (2010) stated that language contact does not necessarily result in language change. In Chapters Two, Three and Four of this study, we investigate how the three variables evidence change in progress as conditioned by linguistic and social factors.

Ravinandrath (2015) points out that one of the central debates in language contact is whether an outcome of the contact is conditioned by linguistic factors or social factors. My investigation aims to address the question whether the linguistic outcomes of JI that have emerged as the result of contact between Betawi and SI are conditioned by linguistic or social factors. The analyses presented in Chapters Two, Three, and Four, first analyze linguistic factors and then social factors.

On the basis of the work of linguists in the nineteenth and early twentieth centuries, Labov (2001:11-12) noted that the most systematic mechanism of language change is found in the domain of sound change. He also states that linguistic change in other areas of language structure such as morphology are often sporadic and difficult to systemize. In terms of sound change, Kimierzki (2015:44) states that some scholars such as Paul (1920), Anderson (1993), Boyland (1993), among others, worked on the assumption that sound change happens below the level of speakers' consciousness and this can be observed in the subconscious patterns of variation in speech production. In addition to that, Miesel et al. (2013) also state that the morpho-syntactic domain is assumed to be cross-linguistically more resistant to change, especially changes that take place within generations. Based on these views, my current study investigates sound and morpho-phonemic patterns of variation and observes the changes in progress that these variations indicate.

Although studies on variation in multilingual communities are not totally ignored, most major investigations have been conducted in monolingual Western communities. Furthermore, studies on variation in language contact situations are

comparatively small in number. As cited by Ravinandrath (2015), Léglise and Chamoreau (2013:3) stated: “Linguistic variation is an opaque area, a blind spot, for most contact-induced language change studies.” My thesis provides a study on patterns of variation that may indicate a contact-induced change that is taking place in multilingual settings, where many speakers are currently shifting to monolingualism.

The next section introduces on the patterns of variation that are investigated in this thesis.

1.6. Three variables under investigation

As commonly discussed in much of the sociolinguistic literature, the primary source of language change over time is synchronic variation (Holmes, 2013, Meyerhoff, 2011, among others). The patterns of variation investigated in my study describe changes in progress. The observed change offers insight into how JI developed from the period of its emergence up to the present time. My examination focuses on three (morpho-) phonological variables in JI.

For each study, we start with a description of the linguistic patterns of use. Then, once we have a clear description of the variables, the development of these patterns of variation is systematically analyzed among three generation of JI speakers according to their class as determined by the level of educational attainment, as discussed in succeeding chapters. The three variables are as follows:

(1) The patterns of variation of final [-a] ~ [-e] in function words. This variation can be found in some function words, such as in [apa] ~ [ape] ‘what’, [dia] ~ [die] ‘3SG’, and [ad͡ʒa] ~ [ad͡ʒe] ‘just, only.’ This variable is studied in Chapter Two.

(2) The patterns of variation of final [Ø] ~ [-h] ~ [-ʔ] in function words. The variants with [Ø] ~ [-h] ~ [-ʔ] are mostly observed in certain function words, such as [lagi] ~ [lagih] ~ [lagiʔ] ‘more/progressive.’ This variation is studied in Chapter Three.

(3) The patterns of variation of the verbal active prefix. The variation between the variant with nasal assimilation and the variant with [ŋə-] occur when the verbal active prefix is combined with voiced obstruent initial roots. Some examples include [ŋə-bəli] ~ [m-bəli] 'to buy', and [ŋə-guntiŋ] ~ [ŋ-guntiŋ] 'to cut with scissors.' This variation is studied in Chapter Four.

1.7. Naturalistic data

Crucially, these patterns of variation need to be studied on the basis of naturalistic colloquial data. Naturalistic data avoid the bias introduced in an elicitation or experimental settings. Furthermore, variation, the seeds of language change, is more likely to occur in informal and uncontrolled speech. They are accessed through corpus study as discussed in 1.8.

We have seen the development of JI that was described from the emergence of Betawi up to the expansion of current JI in 1.4. This description was built on the impressionistic observations based on previous studies. To the best of my knowledge, up to now, there is no study of contemporary Indonesian that complements these impressionistic observations on the basis of careful and systematic investigation that relies on the actual language use. This current investigation examines phonological patterns of use from the emergence of JI (generation 1) to contemporary JI (generation 2 and 3) using naturalistic speech corpora.

Cohn and Renwick (2017) suggested that phonologists should make more use of naturalistic speech corpora. They noted that naturalistic speech corpora are powerful tools to enrich our understanding on the relationship between sound patterns and their variation that often times are obscured by impressionistic method and elicitation. Furthermore, Ravinandrath (2015) pointed out that studies of language contact have mostly been missing the use of naturalistic corpora from vernacular

speech. She also mentioned that newer linguistic variants mostly emerged in vernacular speech.[11] The newer variants that we find in vernacular speech, JI in our case, may be evidence of language contact and change.

According to Labov (2001), there are two kinds of changes: change from above and change from below. Change from above is an adoption of linguistic forms from the dominant class to the less dominant one, and in most cases, speakers are aware of these forms. Although SI is not the form that anyone uses for colloquial purposes in Jakarta, it gives the nuance of appertaining to the more educated and therefore wealthier part of the population. In this way, speakers of SI corresponds to what Labov called the dominant class. JI developed and continues to develop by a process of blending (borrowing) forms from SI. At first, they were borrowed into Betawi, and as the Betawi with SI influence moved away from the original Betawi, a new vernacular, called JI came into being.

On the other hand, change from below occurs firstly in the vernacular and conditioned mostly by linguistic factors. Speakers are usually not aware of this change because it is below the level of social consciousness in most cases, and it may involve speakers from any social class when the change first starts. Labov also reports that he so far has not found any highest social group of speakers who act as innovators of linguistic change. In the case of JI, we find no linguistic conditioning that triggers change.

Based on Labov's account, the core area of linguistic change is, in fact, vernacular variety, therefore the study of change from above and change from below can only be accomplished by investigating vernacular speech. My research attempts to investigate the vernacular speech from three generation of JI speakers. The next section elaborates on the corpora used in this study.

[11] She gives an example from Tagliamonte's (2009) study on 'be like' variant as a verb of quotation in vernacular speech.

1.8. Description of the corpora

The description of the corpora is divided into three parts. The first part explains the corpus of adult speakers from the 2000s that represents generation two (Gil, Tadmor, Bowden, and Taylor, 2015), the second parts describes the corpus of children speech that includes pre-adolescent speakers that represent generation three (Gil et al., 2015), and the corpus of adult speakers from the 1970s that represents generation one (Wallace 1976).

The corpora of adults and children from the 2000s (Gil et al., 2015) are parts of a larger language documentation project conducted by the Jakarta Field Station of The Max Planck Institute (MPI) for Evolutionary Anthropology in collaboration with Atma Jaya Catholic University of Indonesia. They are now accessible through The Language Archive (TLA) at the Max Planck Institute for Psycholinguistics. The children corpus is also available in CHILDES TalkBank system (Mac Whinney, 2000). The corpus from the 1970s is a part of Wallace's (1976) dissertation, which is now available through eCommons, Cornell's digital repository.

1.8.1. Adult corpus from the 2000s

This corpus, which was collected in Jakarta between 2004 and 2012, consists of on-going conversations between adult speakers in informal settings. This corpus involves 143 speakers from various socio-economic and ethnic backgrounds. Besides Betawi and JI speakers, the data collection also includes participants from other ethnicities, such as Javanese, Sundanese, Batak, Ambonese, and others. There is a total of 75,079 transcribed utterances from fifty-eight files of audio recordings. The duration of each recording is between fifteen minutes and one hour. The recordings were done by research assistants mostly at the speakers' house. I myself was also involved as a

research assistant in this project. All utterances in the recordings were then transcribed into a set of relational FileMaker Pro® database files. Everything that was said by the speakers, research assistant and other speakers around them was transcribed orthographically and phonetically. Furthermore, glosses and translations were also provided. Additional information in comments on specific utterance was also provided in a comment field. Metadata that describe speakers' sociolinguistic background were also provided.

For the purpose of this current study, I investigate the speech of following JI speakers whose metadata are described in Table 1.3. These speakers are chosen because they produced more tokens than other JI speakers in the corpus and represent a good sample of all different kinds of speakers involved in the corpus. They are speaker of Jakarta Indonesian who were born and grew up in Jakarta and their parents are not of Betawi ethnicity. They represent both female and male speakers of lower and higher educational categories. Their metadata are described in Table 1.3.

Table 1.3: JI adult speakers and their backgrounds

Speakers	Educational Background	Gender	Parents' Ethnicity	Age	Total utterances in the corpus
F-L-S1	Secondary	Female	Mother: Sundanese; Father: Javanese	24	410
F-L-S2	Secondary	Female	Mother and Father Javanese	29	447
F-L-S3	Secondary	Female	Mother: Javanese; Father: Chinese Jakarta	47	516
F-L-S4	Secondary	Female	Mother and Father: Javanese	26	661
F-L-S5	Secondary	Female	Mother and Father: Javanese	21	771
F-H-S1	Tertiary	Female	Mother: Javanese; Father: Flores	25	197
F-H-S2	Tertiary	Female	Mother and Father:	26	214

			Javanese		
F-H-S3	Tertiary	Female	Mother and Father: Chinese Javanese	23	481
F-H-S4	Tertiary	Female	Mother and Father: Chinese Javanese	22	283
F-H-S5	Tertiary	Female	Mother and Father: Chinese Javanese	34	1,949
M-L-S1	Secondary	Male	Mother: Chinese Jakarta; Father: Chinese Manado	34	1,012
M-L-S2	Secondary	Male	Mother: Javanese; Father: Eastern Indonesia	49	840
M-L-S3	Secondary	Male	Mother: Sundanese, Dutch; Father: Ambonese	29	189
M-L-S4	Secondary	Male	Mother and Father: Javanese	29	547
M-L-S5	Secondary	Male	Mother and Father: Javanese	26	524
M-H-S1	Tertiary	Male	Mother and Father: Sundanese	27	1,042
M-H-S2	Tertiary	Male	Mother: Chinese Jakarta; Father: Chinese Javanese	35	487
M-H-S3	Tertiary	Male	Mother: Chinese Jakarta; Father: Chinese Manado	27	1,126
M-H-S4	Tertiary	Male	Mother and Father: Javanese	27	715
M-H-S5	Tertiary	Male	Mother and Father: Javanese	34	642
M-H-S6	Tertiary	Male	Mother and Father: Chinese/Javanese	50	483
M-H-S7	Tertiary	Male	Mother and Father: Batak	33	483

The occupation of JI speakers of lower educational background in the 2000s corpus are cashiers, lower office clerks, factory laborers, and unemployed workers. This seems to match fairly well the occupations that Wallace (1976) classified as those of low socio-economic status (SES) Jakarta Indonesian speakers. The JI speakers of higher educational background in the 2000s corpus are those who hold an entry to intermediate positions in governmental and private sectors, and these also seem to match the occupations of Wallace's middle SES Jakarta Indonesian speakers. The category of high SES (higher level of managers and bureaucrats) JI speakers in the 2000s corpus is not found in the 2000s corpus. Therefore, it is impossible to compare Wallace's results with JI speakers in the 2000s corpus for this social category. For this reason, the results from Wallace's high SES speakers are discussed but cannot be included in this study. In order to compare Wallace's social categories with those of the 2000s corpus, I equate Wallace's low SES JI speakers with the 2000s speakers of lower educational attainment, and his middle SES JI speakers with speakers of higher educational background in the 2000s corpus.

Let us now turn our attention to the description of the children's corpus.

1.8.2. Children corpus from the 2000s

The children's corpus was the main part of the MPI project at the Jakarta Field Station (Gil et al., 2015). This was a longitudinal project that documented children's speech over a period of four years. There is a total of ten target children involved in this project whose ages ranged from one to eight years of age. On a weekly basis, each child was recorded with a camcorder over a period stretching from two to four years. The recordings were done by research assistants, including myself, in the child's home. Everything that was uttered by the subject children and other people around them was then transcribed into a computerized database. This database includes

orthographic and phonetic transcription, word-by-word translation, and free translation. In addition, a comment field describes the situation surrounding the recording. The data then was subject to a quality control process carried out by research supervisors to ensure data consistency and reliability. The data consistency and reliability check are needed because the data were transcribed by different research assistants.

There are 997 sessions of recordings. Each recording varies in duration between fifteen minutes and one hour. The corpus consists of more than 900,000 utterances with the number of 435,727 utterances produced by children younger than fourteen years old and 394,301 utterances produced by speakers aged fourteen and above.

The following pre-adolescent speakers are involved. The numbers of pre-adolescent speakers are more limited than adult speakers because they are taken from children's corpora that mainly targeted younger children between one and five years of age. They include three male and five female pre-adolescent speakers, as described in Table 1.4.

Table 1.4: JI pre-adolescent speakers and their backgrounds

Speakers	Parents' Educational Background	Gender	Parents' Ethnicity	Age	Total utterances in the corpus
Pre-F-L-S1	Secondary	Female	Mother and Father: Javanese	10-13	2,575
Pre-F-L-S2	Secondary	Female	Mother: Javanese; Father: Sundanese	10	125
Pre-F-L-S3	Secondary	Female	Mother and Father: Javanese	10-11	218
Pre-F-H-S1	Tertiary	Female	Mother and Father: Chinese Jakarta	10-11	2,171
Pre-F-H-S2	Tertiary	Female	Mother and Father: Chinese Jakarta	10	595
Pre-M-L-S1	Secondary	Male	Mother and Father: Javanese	11	28
Pre-M-L-S2	Secondary	Male	Mother and Father: Javanese	13	90
Pre-M-H-S1	Tertiary	Male	Mother and Father: Javanese	10	48

The pre-adolescent speakers here are mostly siblings or neighbors of the target children. The main reasons of choosing pre-adolescent speakers rather than younger children are that in terms of language acquisition, the pre-adolescence are presumably more developed than younger children, and in terms of sociolinguistic context, the exposure to social factors and interaction with other speakers outside the home might be found higher in pre-adolescent speakers than younger children.

The following section discusses the corpus from the 1970s.

1.8.3. Adult corpus from the 1970s

In addition to the MPI corpora explained above, this current study also uses a corpus from documentation conducted in Jakarta in the early and mid-1970s by Wallace (1976). His thesis investigated socio-phonological aspects of Jakarta Malay. With the

help of fifteen research assistants, he collected around thirty-five hours of recordings that involved around 250 adult speakers. The speakers were not only JI and Betawi speakers but also participants from many different ethnicities and of various socio-economic statuses.

The recordings were made by research assistants. The participants were mostly the research assistants' friends, family, relatives, neighbors, and other close acquaintance. The topics of the conversations were mainly daily topics such as TV shows, school exam, the new baby, etc. Wallace reported that he was not present at the recordings since his presence as a foreigner could have caused participants switching into SI. He did final checking by comparing all the transcriptions with the recordings word by word at least twice.

In 2015, Wallace sent me the typewritten version of the corpus. The transcription of the corpus was phonological and based on Indonesian orthography. Vowel qualities were marked with hand-written diacritics, while glottal stop was marked with 'q'. Unfortunately, the recordings have been lost. Because of this limitation, I did not use his data for analyzing the variation [Ø] ~ [-h] ~ [-ʔ] in Chapter Three. Although they were phonologically marked in the transcription, their differences in most cases are very subtle and therefore audio data are needed to confirm the accuracy of the transcription.

Wallace (1970: 69-70) classified his 1970s speakers based on two ethnic categories. The first one is Traditional Jakarta Malay (Betawi) and the second one is the Modern Jakarta Malay (Jakarta Indonesian) speakers. As mentioned above, in terms of socio-economic status (SES), Wallace classified his speakers into three main categories: speakers from low SES, speakers from middle SES, speakers from high SES. His low SES speakers are mostly manual laborers, small-scale traders, minor office clerks, railroad conductors, and others who performed tasks that required no

high skills. His middle SES speakers are mostly those who had intermediate positions in government offices or private industries, and his high SES speakers were mostly higher managers and bureaucrats. However, Wallace did not mention his speakers' educational levels. I assume that his speakers who occupied intermediate positions in the civil service or in private industries had college-level education and his speakers who were non-highly skilled workers most probably attained no more than high school.

1.8.4. Search method and analysis

The search for children and adults corpora from the 2000s was conducted using a Filemaker Pro® search engine. The first step was to identify JI speakers in the corpus based on available metadata. The next step was to search on the variables being investigated in certain phonological environments. To assure the quality of the IPA transcription done by the MPI's research assistant (Coder 1), I (Coder 2) re-transcribed the word carefully while listening to the audio file without looking at the Coder 1's transcription. If the differences between Coder 1 and Coder 2 were numerous, acoustic analysis was conducted in Praat (Boersma and Weenink, 2013). Every utterance in the 2000s corpus has a unique ID. In this study, the utterance ID is included in square brackets in all utterances that are taken from the 2000s corpus.

The 1970s corpus search was done manually on the Pdf files. The transcription of the typewritten version was scanned by Olin Library, Cornell University, and is searchable based on orthographic character, word, and string of words.

In this thesis, the analyses conducted are qualitative rather than quantitative. The results are presented based on the percentage of the variants under investigation, and since the spontaneous speech data is not balanced, i.e., speakers may or may not always produce relevant tokens, there was no statistical test conducted.

1.9. Structure of the thesis

The thesis consists of three case studies as presented in Chapters Two, Three, and Four. In Chapter Two, the patterns of variation of final [-a] and [-e] in certain function words are discussed. A socio-historical description of final [-a] and [-e] is provided based on previous studies. An acoustic investigation is also conducted to observe if these two vowels are categorically distinct. The acoustic analysis includes measuring F1 and F2 of each vowel. Once the analysis confirms that final [-a] and [-e] are categorically distinct, they were then searched in the corpus. The results are presented based on non-linguistic factors, namely education, and gender.

In Chapter Three, the patterns of variation of final Ø ~ [-h] ~ [-ʔ] in function words are presented. A description of these three segments is first explained, especially in relation to Betawi, Sundanese, and SI. Then, the results of corpus study is presented. Both linguistic and non-linguistic conditionings that determine the patterns of variation are also further discussed.

In Chapter Four, the verbal active prefix that is realized as the variant with nasal assimilation and the variant with [ŋə-] is discussed. It begins by presenting the description of the verbal active prefix in JI and SI. The results from the corpus study and speech production experiment are then presented by gender and educational background of the speakers.

Finally, Chapter Five provides general discussions of major findings and their implications. First, a summary of how the three variables compare to one another is presented. It summarizes the findings: which variants show general tendencies and their sociolinguistic meaning; the results that demonstrate this; and the groups that are leading. Then, it discusses how the patterns of variation produced by three generations of speakers that are found in Chapters Two, Three, and Four, may enrich our

understanding of the development of JI. It also addresses the implications for our better understanding in studying language variation, contact and change. Directions for further research are discussed in Chapter Five as well. In future research, it is important to examine if patterns in phonological variation also can carry over to other linguistic variables, such as in morphology and syntax. Additionally, an investigation on the dispersion of SI and JI forms to other regional varieties of Indonesian is also worth considering.

CHAPTER TWO

PATTERNS OF VARIATION OF WORD-FINAL [-a] AND [-e]

2.0. Introduction

In many sociolinguistics studies, language variation is proposed as the main source of language change. Word-final /-a/ in Jakarta Indonesian (JI) has been produced with variation, e.g. [apa] ~ [ape] 'what.' This pattern of variation is one of the key elements that contributes to our understanding of the emergence of a rural-urban blending variety in Jakarta, which Wallace (1976) considered to be the possible origin of JI. As discussed below, this pattern of variation has been exhibited by inhabitants of Jakarta for more than two centuries since its emergence at some time during the end of the eighteenth century or the beginning of the nineteenth century to the present time.

The investigation here focuses on patterns of variation of final [-a] and [-e] in function words. Word-final [-e] in function words may be phonetically realized as [e], [eh], [e^h], [ɛ], [ɛh], or [$ɛ^h$], while word-final vowel [-a] in function words may be phonetically realized as [a], [ah], or [a^h]. For example, [ape], [apɛ], [apa], [apah] 'what', and so forth. For the purpose of this study, I will use only IPA [-a] and [-e] as the reference forms for all their phonetic realizations just listed here. The reason of choosing function words will be further explained in 2.1.2.

This chapter is divided into four sections. The first one is the description of word-final [-a] and [-e] that offers a historical, phonetic, and phonological description. The second section provides the methodology. The third section discusses the patterns of variation found in the three corpora. The details of the corpora were already explained in 1.7. Finally, discussion and conclusion are presented in the fourth section.

2.1. Description of word-final [-a] and [-e]

To have a better understanding of the origin, emergence and development of the variation between the variant with final [-a] and the variant with final [-e], it is important to observe the phonological status of final [-a] and [-e] historically as well as in JI currently. For that reason, the rest of this section elaborates two main parts: the historical aspect of final [-a] and [-e], and the phonological and phonetic description of final [-a] and [-e] in JI based on previous and recent studies and my observations. First, let us now observe the historical aspect of these vowels.

2.1.1. The historical aspects of word-final [-a] and [-e]

As we have discussed in Chapter One, the first emerging community that created a distinct linguistic and ethnic identity in Jakarta was the Betawi. The pattern of variation of final [-a] and [-e] originally emerged among Betawi speakers. In terms of time and location, most studies of Betawi agree that final [-e] emerged in the inner city of Jakarta around the beginnings of the nineteenth century. However, there are at least two opposing views regarding the origin of final [-e] in Betawi. On the one hand, Wallace (1976) considered final [-e] in Betawi to be of Arabic influence. On the other hand, Tadmor (2003) argued that final [-e] in Betawi emerged as an internal innovation. The purpose of my current study, however, does not aim to resolve this disagreement but uses the emergence of final [-e] as a starting point to describe the patterns of use in the next few generations of speakers.

Wallace suggested that the final [-e] was adopted from the Arabs from the Hadhramaut region (present-day Yemen). These Hadhrami people took part in trading in Southeast Asia and many of them eventually settled in the Jakarta urban areas, more precisely in the lower city called *Pekojan*. The *Pekojan* area is known as the western part of *Kota* nowadays. The root of *Pe-koja-an* ‘The Kojas’ is *koja* derived from

khwāja (New Persian *Khājé*), a group of people who converted to Islam in India, South Asia, and then migrated to Southeast Asia including Jakarta before the Hadhramis arrived. According to Abeyesekere (1987:63), in the early nineteenth century, the Hadhramis from Yemen took over the Pekojan area from the Kojas who diminished in influence after their business declined due to the British conquest of India. However, it is hard to find Arabs in this Arab quarter these days as they and their descendants have already moved to other areas of Jakarta.

Wallace suggested that the Arabic forms of final [-e] were adopted by Jakarta inhabitants into their local lexical items replacing Malay final [-a] or [-ə] in word-final position and becoming a marker of prestige around the early nineteenth century because of the highly influential Islamic Arabs leaders at that time.

Although Wallace's suggestion is interesting and deserves serious thought, some scholars cast doubt on this proposal because the emergence of final [-e] might have been triggered by an internal innovation in Betawi and is irrelevant to contact with Arabic. According to Tadmor (2003), final [-e] did not arise historically due to Arabic influence, but rather, as a consequence of areal phenomenon in the Malay dialects of the western part of Indonesia, where final [-a] is fronted and raised. This change of final [-a] to [-e] is also found in Perak (Malay Peninsula), Sambas (Borneo), Palembang (Sumatra). Nothofer (1995) also reported that final [-e] is found in the southwestern dialects of Malay, such as in Bangka Malay.

Tadmor (2003) proposed that there was a change of final /-a/ to several forms that took place across the western Malay dialects. There are two stages involved in this vowel change. The initial stage was when the Proto-Malayic final /-a/ changed to [-ə] throughout the western part of Indonesia around the fourteenth and sixteenth centuries. The second stage is when the schwa [-ə] developed locally into [-o], [-ɔ], [-e], [-ɛ], or remained [-ə], or remained [-a] where the change to [-ə] never happened. According to

Tadmor, the emergence of final [-e] in Jakarta occurred as a result of local and independent innovation.

Based on this proposal, there are at least two more conservative forms before final [-e] emerged in Jakarta. The oldest one is [-a], which is an inheritance from Malay. The second oldest one is final [-ə].[12] According to Wallace (1976), the final schwa [-ə] was then fronted to final [-e] in the late nineteenth century. This change from [-ə] to [-e] occurred in the urban areas, while in the rural-urban areas final [-e] changed into [-a], [-ah], or [-aʔ] under Sundanese influence. The chronological sketch is the following:

(i) [-a] (Malay) > [-ə] (areal phenomenon)

(ii) [-ə] > [-e] (internal innovation/Arabic influence(?))

(iii) [-e] remains [-e] in urban areas, and changes to [-a], [-ah] or [-aʔ] in rural-urban areas (under Sundanese influence)

All previous studies in Betawi agree that at least in some phonological aspects, urban Betawi is different from rural Betawi. Final [-e] was used by urban Betawi speakers and final [-a], [-ah], and [-aʔ] were used in rural areas. This current study does not have the intention of replicating previous sub-dialectal isogloss comparisons as it would be nearly impossible to do such a study in a rapidly changing city like Jakarta at the present time. My current study focuses on the pattern of variation in the recent development since the independence of Indonesia in 1945 where final [-e] is still used as a trace of a more conservative urban Betawi form, and final [-a] is used as evidence of more recent language contact with SI. It provides a detailed description of

[12] Wallace also reported that schwa in word-final position – similar to the final [-e] above –, was one of the phonological properties in the early formation of Betawi which has become extinct in JI. Interestingly, Ikranagara (1980) reported that the usage of schwa in word-final position was still found in Kebon Pala area in the 1970s. As a native speaker of JI, I have never heard of schwa in word-final position spoken in Jakarta at the present time. It should also be noted that schwa in word-final position has been lost in Indonesian as well, but it was reintroduced in Dutch borrowings such as [tantə] 'auntie', or diminutive used in personal names as in Mince [mint͡ʃə], or Boyke [bojkə].

this isogloss that may help us in gaining a better understanding of the development of JI.

The previous studies agree that the final [-e] such as in [ape] ‘what’, [die] ‘3SG’, [mate] ‘eye’, [taŋe] ‘ask’ was spoken in the urban areas, corresponding to final [-a] in Indonesian/Malay as shown in the following table.

Table 2.1: Function words and content words with final [-a] ~ [-e] in urban Betawi

Function words	Urban Betawi	Indonesian/Malay
Personal pronouns	[die] ‘3SG’, [aje] ‘1SG’.	[dia], [saja]
Interrogatives	[ape] ‘what’, [mane] ‘where’, etc.	[apa], [mana]
Prepositions	[ame] ‘with’, [daripade] ‘instead of’	[ama], [daripada]
Content Words	Urban Betawi	Indonesian/Malay
Noun	[mate] ‘eye’, [(kə)pale] ‘head’	[mata], [kəpala]
Verb	[taŋe] ‘ask’, [puŋe] ‘posses’	[taŋa], [puŋa]
Adjective	[mude] ‘young’, [gile] ‘crazy’	[muda], [gila]

According to Wallace (1976), in the rural areas, final [-e] in content words was replaced by [-aʔ], corresponds to Malay/Standard Indonesian (SI) form [-a]. Therefore, the forms [mate] became [mataʔ], and [taŋe] became [taŋaʔ]. Some literature on Betawi and Betawi native speakers from urban areas call this rural Betawi as Betawi Ora. ‘Ora’ [ɔraʔ] is from Javanese *ora* ‘negation’. For most Betawi speakers, the term ‘ora’ is pejorative. The rural Betawi is not considered as ‘real’ Betawi.

As discussed above, Jakarta was under Dutch colonial rule when Betawi gradually emerged in urban areas in the nineteenth centuries. The rural variety of Betawi emerged when the Dutch tried to strengthen their military power in Java in the early nineteenth century. The Dutch established a fortress in Jatinegara, east of Jakarta, on the border of Sundanese speaking areas. This important garrison caused the

surrounding areas to be developed into the first suburb of Jakarta.[13] The highlighted part shows Jatinegara area in Google Maps (2018).

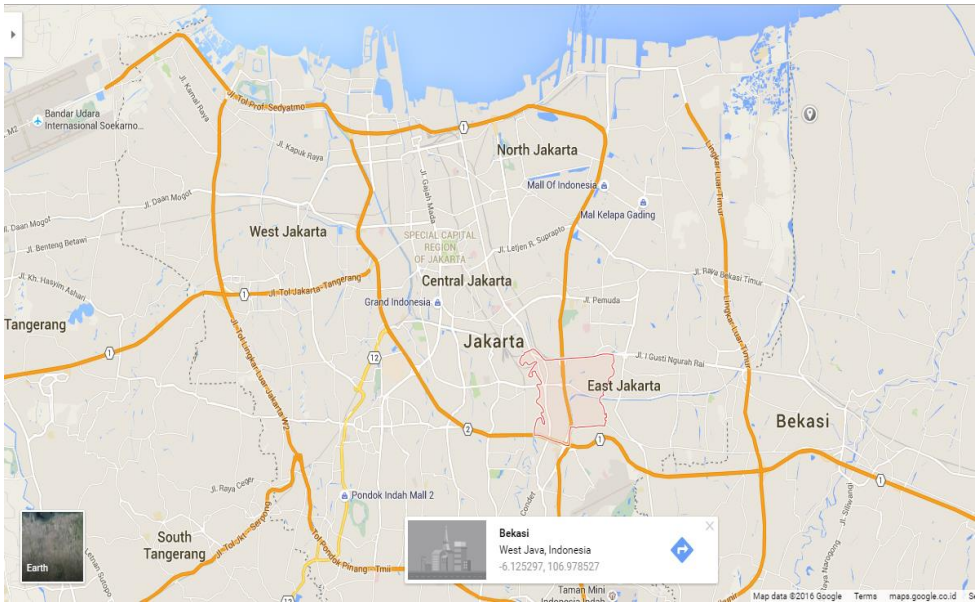


Figure 2.1: Present-day Jatinegara. Map Data ©2018 Google.

Wallace considered the variety spoken in this area as a transitional rural-urban blending variety. He considered it as the origin of JI. The Sundanese speakers in this area influenced rural Betawi in that final [-e] was replaced by [-ah] or [-aʔ]. Sundanese has the final vowel that is followed by glottal fricatives as in [-ah] and glottal stops as in [-aʔ], which corresponds to the Indonesian/Malay final [-a]. The evidence that the rural dialect had changed [-a] to [-e] before changing it further to [-ah] and [-aʔ] is in the fact that the rural dialect in this area uses forms with [-aʔ] (under Sundanese influence) only in content words, while final [-e] remains in function words, but in variation with final [-ah]. Table 2.2 below provides a more detailed description.

[13] This new town was known as Meester Cornelis, the previous owner of the property used for the fortress, and at the present time known as 'Mester' area.

Table 2.2: Function words and content words with final [-a] ~ [-e] in rural Betawi

Function words	Rural Betawi	Indonesian/Malay
Personal pronouns	[die] ~ [dia(h)] '3SG', [aje]/[gue] ~ [aja]/[gua(h)] '1SG'.	[dia], [saja]
Interrogatives	[ape] ~ [apa(h)] 'what', [mane] ~ [mana(h)] 'where', etc.	[apa], [mana]
Prepositions	[ame] ~ [ama] 'with', [daripade] ~ [daripada] 'instead of'	[ama], [daripada]
Content Words	Rural Betawi	Indonesian/Malay
Nouns	[mataʔ] 'eye', [(kə)palaʔ] 'head'	[mata], [kəpala]
Verbs	[taɲaʔ] 'ask', [puɲaʔ] 'posses'	[taɲa], [puɲa]
Adjectives	[mudaʔ] 'young', [gilaʔ] 'crazy'	[muda], [gila]

The rural-urban blending variety can be seen in the variation above. [die] '3SG' is in variation with [dia(h)], [ape] 'what' is in variation with [apa(h)], and so on, while [mataʔ] 'eye', [(kə)palaʔ] 'head', and other content words occur consistently with final [-aʔ], and not with final [-e]. Wallace considered this variety as the origin of JI. The present-day speakers of JI show patterns of variation of final [-a] and [-e] that more closely follow rural Betawi patterns than those of urban Betawi. Speakers of JI produce more variation of final [-a] and [-e] in function words and consistently use final [-a] or [-aʔ] in content words.[14]

To summarize, I provide two phonological changes for both urban and rural Betawi. For urban Betawi, the change happened across function words and content words, and it is formalized in [-a] > [-ə] > [-e]/__#. In this change, final [-a] first changed to [ə], then schwa [ə] changed to [-e]. For rural Betawi, we need different changes for function words and content words. In function words, the change is [-e] > [-e] ~ [-a(h)] /__#. This is applied to change from final [-e] to final [-a], [-ah], or otherwise remained [-e]. In content words, the change is [-e]> [-aʔ] /__#. This rural

[14] The variation of final [-h] and [-ʔ] in function words and content words are examined in further details in Chapter Three.

Betawi change was later adopted by JI speakers with strong influence from SI. The following figure illustrates the chronological development of JI in relation to Betawi and SI, based on evidence from [-a] ~ [-e] variation.

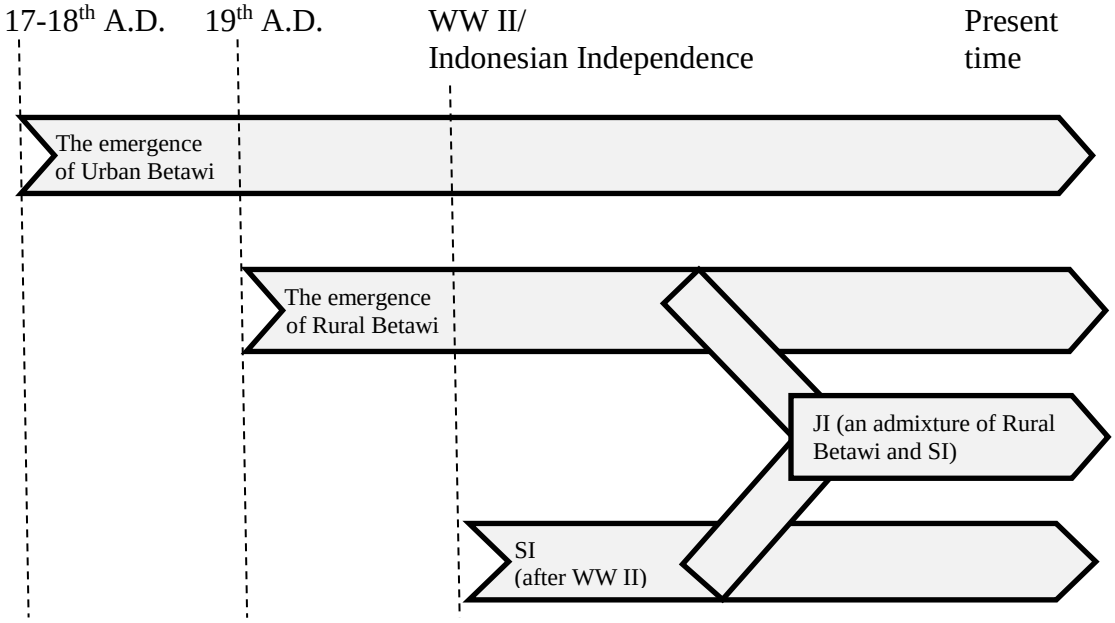


Figure 2.2: Chronological sketch: Betawi, Jakarta Indonesian (JI), and Standard Indonesian (SI).

There are three varieties sketched in Figure 2.2: Betawi (urban and rural), JI and SI. These three varieties are still spoken in Jakarta today. Betawi is still spoken today by a small minority of Betawi community, although the urban and rural distinction is no longer relevant due to the rapid development of the city. As proposed by Wallace (1976), JI was developed originally from rural Betawi.

Using evidence from the pattern of variation of final [-a] and [-e] in function words, this current study suggests that the pattern of variation in JI has shifted away from the urban Betawi pattern under the influence of SI. As the national language, SI has been successfully cultivated by the Indonesian government, and its widespread use has influenced almost all local varieties in Indonesia including Betawi. Based on this

reasoning, Figure 2.1 above hypothesizes that JI is a mixture of rural Betawi and SI.

To test this hypothesis, the rest of this chapter will be devoted to observing the pattern of variation of final [-a] and [-e] in function words. First, let us examine the phonetics and phonological description of final [-a] and [-e] in section 2.1.2.

2.1.2. Phonetic and phonological description of word-final [-a] and [-e]

In his study of SI phonology, Lapoliwa (1981) stated that Indonesian has a six-vowel system, as presented in Table 2.3.

Table 2.3: Standard Indonesian vowels

	Unrounded		Rounded
	Front	Central	Back
High	i		u
Mid	e	ə	o
Low		a	

Lapoliwa (1981), describes [a] as a low-central unrounded oral vowel, while [e] is described as a mid-front unrounded oral vowel. Lapoliwa mentioned that vowels [a] and [e] may occur in initial, medial, and final positions of a word. This distribution is also applied to both JI and Betawi. Phonologically, vowels [a] and [e] are contrastive in these varieties. Examples of [a] and [e] in minimal pairs: [ce.t**a**k] 'print' – [ce.t**e**k] 'shallow' and [**a**.d͡ʒa] 'just' – [**e**.d͡ʒa] 'spell'. It should be noted that the minimal pairs occur both in closed final and open penultimate syllable (I have not found minimal pairs in antepenultimate position since Indonesian/Malay words are commonly disyllabic, and the distribution of antepenultimate syllables in these varieties is limited primarily to recent foreign borrowings).

Vowels [a] and [e] may both occur in final open syllable such as in [a.d͡ʒ**a**] 'just' [be.d**a**] 'different', [lon.t**e**] 'prostitute', [ke.r**e**] 'poor'. [a] contrasts with other vowels in final open syllable such as [bo.l**a**] 'ball' – [bo.l**u**] 'sponge cake', [ro.d**a**]

‘wheel’ – [ro.d**i**] ‘corvee’. Words with final [-e] are not very frequent in SI and probably originate from the monophtongization and fronting of earlier [-ai]. For example, [kə.r**e**] ‘sunshade’ that is historically from [kə.r**ai**].[15]

Wallace (1976:69-71, 87), as also cited by Grijn (1991:203), suggested that the variation of final [-a] and [-e] in JI is found only in function words but not in content words. Based on my own impressionistic observation, I also never hear final [-e] in content words produced by JI speakers. Following Wallace’s suggestion and my own observation, I present only the patterns of variation of final [-a] and [-e] that are found in certain function words and exclude the content words. The examples of variation in function words are in the followings:

(1) a. [ija] ~ [ije] ‘yes’

b. [gua] ~ [gue] ‘1SG’

c. [apa] ~ [ape] ‘what’

I analyze the patterns of variation only in the bare form such as in (1a)-(1c) and exclude roots that are combined with suffixes, since the variation in these forms may be morpho-phonologically conditioned, and previous studies have not reached definitive conclusions about their patterns of realization. The forms of [-a] and [-e] before suffixes are not included. The examples in (2) are taken from Ikranagara’s (1981) study.

(2) a.	[apa] ~ [ape]	‘what’
b.	[apa-ɲa] ~ [ape-ɲe]	‘what-DET/POSS’
c.	[ŋ-apa-in]	‘N-what-in’
d.	[apa(ʔ)-an]	‘what-an’

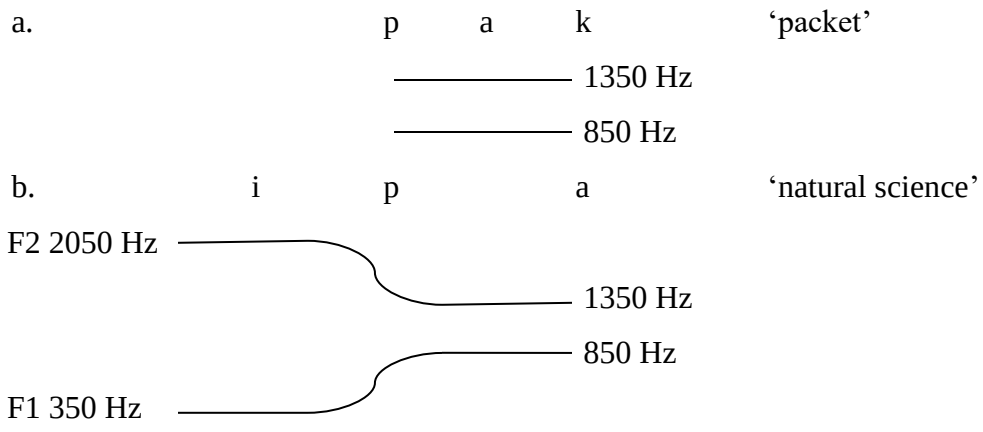
[15] The analogous monophthongization occurs with [o], the monophtongization historically happened from [au] to [o], such as in [pu.l**au**] > [pu.l**o**] ‘island.’ In this case, [pu.l**a**] ‘also’ is in minimal pair with [pu.l**o**]. This monophtongization is very common in Indonesian.

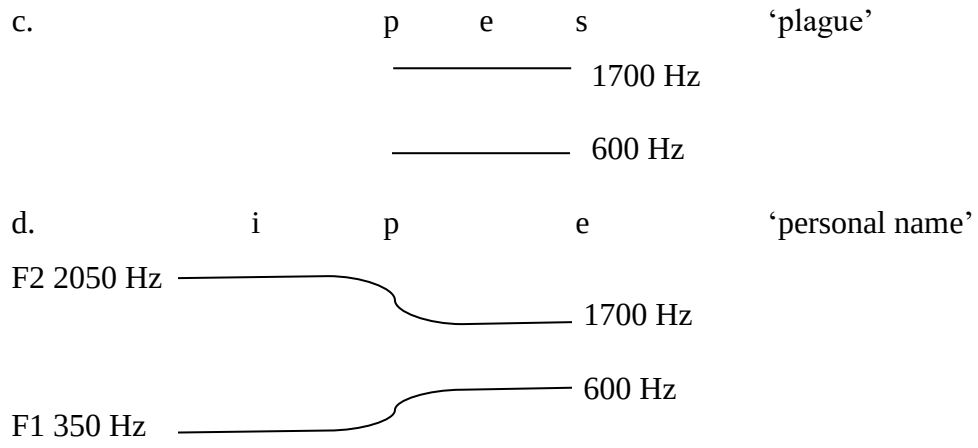
The general pattern for the examples in (2) is that variation in the root-final position occurs when it is suffixed with *-nya*, but the variant [-e] does not occur when the root is suffixed with *–an,* or *–in* (but see below). It seems that vowel harmony also determines the realization of [-a] in [apa-ɲa] and [-e] in [ape-ɲe]. However, this generalization is called into question by the variation of [ma(ŋ)ka-ɲe] and [ma(ŋ)ke-ɲe] 'then-nye' cited by Wallace (1976:73). For the suffixes *–an* and *–in,* Wallace agrees with Ikranagara. However, Grijn (203-4) quotes both [diapain] and [diapein] 'di-what-in' although the former is of greater frequency than the latter.

To determine if the contrast between [-a] and [-e] is categorical, I performed an acoustic analysis of the first and the second formant (F1 and F2), and vowel space (F2-F1) of vowel [-a] and [-e] from the 2000s corpus.

As a reference point, I use van Zanten's (1989:16) study on Indonesian vowels. I use the vowel reference value for the vowel [a] from the word [pak] 'packet' and for the vowel [e] from the word [pes] 'plague'. I create reference figures of vowel space for words [pak], [ipa] 'natural science', [pes], and [ipe] 'personal name' as follows:

Figure 2.3: [-a] and [-e] vowel space





The formant values in [-a] and [-e] are from mean formant values from van Zanten's study on six Indonesian vowels [i], [e], [a], [o], [u], and [ə]. In her study, each vowel is embedded in a monosyllabic word and produced by ten native speakers. In Figure 2.3, they are used as reference or illustrative formant values that distinguish final [-a] and [-e] in the words [ipa] and [ipe] respectively.

There are differences in formant values between final [-a] in the word [ipa] and final [-e] in [ipe] in Figure 2.3. For final [-a] in [ipa], the reference F1 value is 850 Hz, F2 is 1350 Hz, and the difference between F1 and F2 (F2-F1) is 500 Hz. For final [-e] in [ipe], the reference F1 value is 600 Hz, F2 is 1700 Hz, and the difference between F1 and F2 (F2-F1) is 1100 Hz. F1 value in [-a] is higher than F1 in [-e], while F2 in [-a] is lower than F2 in [-e].

Comparing to contrastive [-a] and [-e], we can see that vowel [-a] and [-e] are acoustically distinct, and there is variation as exemplified in (1). The next section elaborates the words under investigation.

2.2. Word forms under investigation

The investigation focuses on the patterns of variation in the following function words presented in Table 2.4 below.

Table 2.4: Function words and their variation

	Indonesian Orthography	Degree of Formality	Variation	Gloss
1	–nya	Formal/Informal	[ɲa] ~ [ɲe]	DET/POSS[16]
2	ya	Formal/Informal	[ja] ~ [je]	yes
3	iya	Formal/Informal	[ija] ~ [ije]	yes
4	ada	Formal/Informal	[ada] ~ [ade]	exist
5	dia	Formal/Informal	[dia] ~ [die]	3SG
6	aja	Informal	[ad͡ʑa] ~ [ad͡ʑe]	just
7	apa	Formal/Informal	[apa] ~ [ape]	what
8	gua	Informal	[gua] ~ [gue]	1SG
9	dua	Formal/Informal	[dua] ~ [due]	two

The final vowels in Table 2.4 above are preceded by different consonants, vowels, and glide. We will see that the preceding segment matters. In particular, when the preceding segments are [i], [j], [ɲ], and [d͡ʑ], which will be discussed further in 2.5.1.

The main reason of choosing the function words above is because their occurrences are higher than other function words found in the 2000s corpus, are produced with variation, and because this is where the variation is observed. Table 2.5 below shows more detailed information about their occurrences.

[16] DET/POSS: determiner/possessive.

Table 2.5: Function words and their occurrences

	Word forms	Gloss	Occurrences
1	nya	DET/POSS	10,267
2	ya	yes	8,191
3	iya	yes	8,153
4	ngga	no	5,172
5	gitu	like.that	4,900
6	di	locative	4,779
7	xxx	xxx	4,525
8	itu	that	4,374
9	yang	rel.clause	4,362
10	kan	causative	4,267
11	kalo	if	4,112
12	ada	exist	3,902
13	saya	1SG	3,890
14	uda	already	3,573
15	he-eh	uh.huh	3,444
16	tu	that	2,908
17	dia	3SG	2,637
18	xx	xx	2,562
19	he-em	uh.huh	2,496
20	ini	this	2,472
21	orang	person	2,310
22	aja	just	2,232
23	apa	what	2,223
24	mah	particle	2,176
25	juga	also	2,154
26	ke	to	2,148
27	dulu	before	1,949
28	gua	1SG	1,740
29	sini	here	1,733
30	o	exclamation	1,720
31	lagi	more	1,641
32	kita	1PL	1,632
33	hmm	oh	1,547
34	ni	this	1,391
35	dari	from	1,341
36	oh	exclamation	1,262
37	Bu	mother	1,244
38	tau	know	1,179
39	masi	still	1,100
40	ama	with	1,066
41	dua	two	1,007
42	jadi	become	1,007

43	tapi	but	1,001
44	mana	which	988
45	bisa	can	965
46	mo	want	897
47	anak	child	865
48	eee	filler	846
49	punya	have	842
50	kata-nya	word-DET	802

The words in the Table 2.5 above are from the 2000s corpus. These are the top fifty most produced words in the corpus in rank order. The corpus search is based on the word form and not based on the phonetic transcription. The search results are from the naturalistic speech production of a total of sixty-nine JI adult speakers involved in the project.

The nine function words under investigation are highlighted in grey. We can see that the word form *–nya* 'DET/POSS was produced 10,267 times, *ya* 'yes' was produced 8,191 times, *iya* 'yes', 8,153 times, *ada* 'exist', 3,902 times, *dia* '3SG', 2,637 times, *aja* 'just' 2,232 times, *apa* 'what' 2,223 times, *gua* '1SG', 1,740 times, and *dua* 'two' was produced 1,007 times. Thus far, we have seen that the function words which are investigated in this study show higher occurrences. The next section provides information on the speakers involved in a study of the production of final [-a] and [-e].

2.3. Speakers

From the 2000s corpus, I chose ten adult male speakers and ten adult female speakers. From the children's 2000s corpus, I chose five female pre-adolescent speakers and three male pre-adolescent speakers. As explained in Chapter One, all these JI native speakers were born and grew up in Jakarta, and they are not of Betawi descent. They

are sampled according to their gender and educational background. Their metadata are based on self-reporting. The summary chart is provided in Table 2.6.

Table 2.6: Speakers and their backgrounds

Adult Speakers			
Number of Speakers	Educational Background	Gender	Age Range
5	Secondary	Female	21-47
5	Tertiary	Female	22-34
5	Secondary	Male	26-49
5	Tertiary	Male	27-35
Pre-adolescent Speakers			
Number of Speakers	Parents' Educational Background	Gender	Age Range
3	Secondary	Female	10-13
2	Tertiary	Female	10-13
2	Secondary	Male	10-13
1	Tertiary	Male	10-13

Table 2.6 above shows that there are five adult female speakers who had completed secondary education as their highest degree and their ages range from twenty-one to forty-seven years of age. There are five other adult female speakers who have completed their tertiary education level and their ages range from twenty-two to thirty-four years old. There are five adult male speakers who have completed secondary education as their highest degree and their ages range from twenty-six to forty-nine years old. There are another five adult male speakers who have completed the tertiary educational level, and their ages range from twenty-seven to thirty-five years of age. There are two female pre-adolescent speakers whose parents have completed secondary education as their highest degree, and another three female pre-adolescent speakers whose parents have completed their tertiary educational level– i.e., they have a higher educational degree. There are two male pre-adolescent speakers whose parents have completed secondary education as their highest degree,

and another male pre-adolescent speaker whose parents have completed the tertiary level. They are all primary school students whose ages range from ten to thirteen years of age. The number of pre-adolescent speakers are limited in the 2000s children's language corpus and is not equal to the number of adult speakers involved in this study. These pre-adolescent speakers are primarily siblings, neighbors, or friends of the target children aged one to five.

The speakers are sampled in such a way as to be expected to inform us of their exposure to SI and Betawi. This might correlate with their or their parents' educational background.[17] I expect to see more influence from SI and less of the remnant of Betawi from speakers of higher educational background, while speakers of lower educational background should show the opposite results. The next section discusses data limitations and methodological issues that need to be addressed in the 2000s corpus and how this current study tackles this issues.

2.4. Acoustic measurements

The recordings of the 2000s corpus were carefully listened to and coded impressionistically by native speakers of JI who received training at the MPI, Jakarta Field Station. Although this computerized database is neatly designed and stored based on an impressionistic check of the recordings, there are some errors found in the phonetic transcription. To circumvent the problem of errors in transcription, an acoustic measurement was conducted. The results of the acoustic analysis were then used to address the data limitation and methodological issues found in the 2000s corpus.

For the acoustic measurement, a recording from M-L-S2 speech was analyzed. In the 2000s corpus data collection, a research assistant recorded and transcribed M-L-

[17] I intentionally do not classify them based on their socio-economic background, as it is not uncommon to find people from higher economic level who still speak with strong Betawi accent.

S2's speech. She will be called 'Coder 1'. Coder 1 is a 26-years-old female speaker of JI. She has a college degree and comes from middle to upper-class family. There are two native speakers of JI involved in this recording with very minor interruptions from a few other people. The two speakers are M-L-S2 and Coder 1 herself. The total duration of the recording is forty-five minutes and fifteen seconds. This was done in an office room in a relaxed and colloquial setting.

The International Phonetics Alphabet (IPA) is used to code the speech sound produced by the target speaker and perceived by the coder. For words with variation, there might be two IPA representations in the corpus. For example, the word form -*nya* 'DET/POSS' might be coded [ɲa] in an utterance and coded [ɲe] in the other utterance depending on the coder's judgment. To ensure the accuracy of the IPA transcription, I listened and coded these words carefully a second time. I call myself Coder 2. Both coders did the coding in FileMaker Pro. To avoid the perception bias, Coder 2 re-codes the words without looking at the IPA transcription of Coder 1. I found that some of Coder 1's IPA transcriptions did not match with Coder 2's transcription. Sometimes, what Coder 1 perceived as final [-a] is perceived by Coder 2 as final [-e]. For example, there are tokens of the word -*nya* 'DET/POSS' that were transcribed as [ɲa] by Coder 1 but perceived as [ɲe] by Coder 2.

To achieve a higher level of accuracy, the acoustic measurement of these words was conducted in Praat (Boersma & Weenink, 2013). The purpose of this acoustic measurement is to test the judgment of Coder 2. The acoustic measurement also aims to evaluate the occurrences of the first formant (F1), which is related to vowel height, i.e., a higher F1 indicates lower vowel height, while a lower one exhibits the higher vowel height, and the second formant (F2), which corresponds to the degree of backness, i.e., the higher formant indicates more front vowels, while the lower formant represents a greater degree of backness (Ladefoged & Johnson, 2015). I

measured the center frequencies of F1 and F2 at the midpoint halfway through the vowel duration.

I found the impressionistic coding of the final [-a] and [-e] conducted by Coder 2 to be in accordance with the formant values shown by the acoustic measurements. In some utterances, however, acoustic measurement cannot be done due to unavoidable overlapping speech or noise during recording. The more detailed results are presented in the next section.

The next section elaborates the results of the acoustic measurements. The analysis focuses on the words [ada] ~ [ade] 'exist', [apa] ~ [ape] 'what', where the final [-a] and [-e] are preceded by [d] and [p] respectively. The other words are [ɲa] ~ [ɲe] 'DET/POSS', [ija] ~ [ije] where final [-a] and [-e] are preceded by [ɲ] and [j] respectively. All the variation in these four words are uttered by a single speaker, M-L-S2. It should be noted here that the recordings were done in naturalistic settings, i.e., not in the lab, and the spectrograms may show background noise.

2.4.1. Results of acoustic measurement of the word *ada*

The acoustic measurement of F1 and F2 values of the word *ada* 'exist' is discussed in this section. The word *ada* may be realized as [ada] or [ade]. Figures 2.4 and 2.5 show examples of spectrograms of two tokens of the variation between [ada] and [ade].

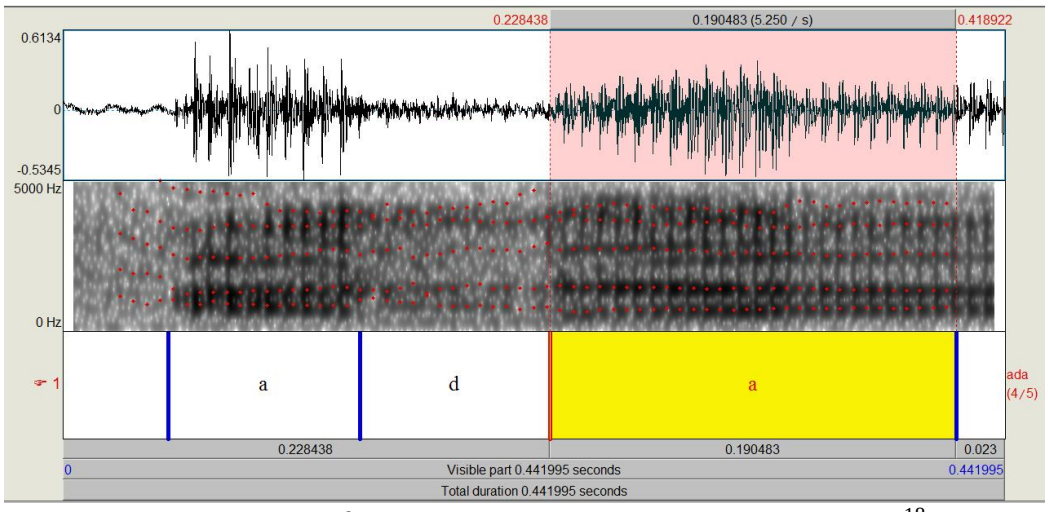


Figure 2.4: Spectrogram of the word *ada* [ID: 9703071132582710004].[18]

The spectrogram in Figure 2.4 illustrates the vowel [-a] produced by M-L-S2 in word *ada* 'exist' in the utterance *ada temen saya* 'I had a friend.' Both Coders 1 and 2 agree that the word *ada* should be coded [ada]. In this token, the formant values of final [-a] in [ada] are 761 Hz (F1) and 1293 Hz (F2). The vowel space between F2 and F1 (F2-F1) is 532 Hz. Let us now observe the word *ada* when it is acoustically realized as [ade] as illustrated in Figure 2.5 below.

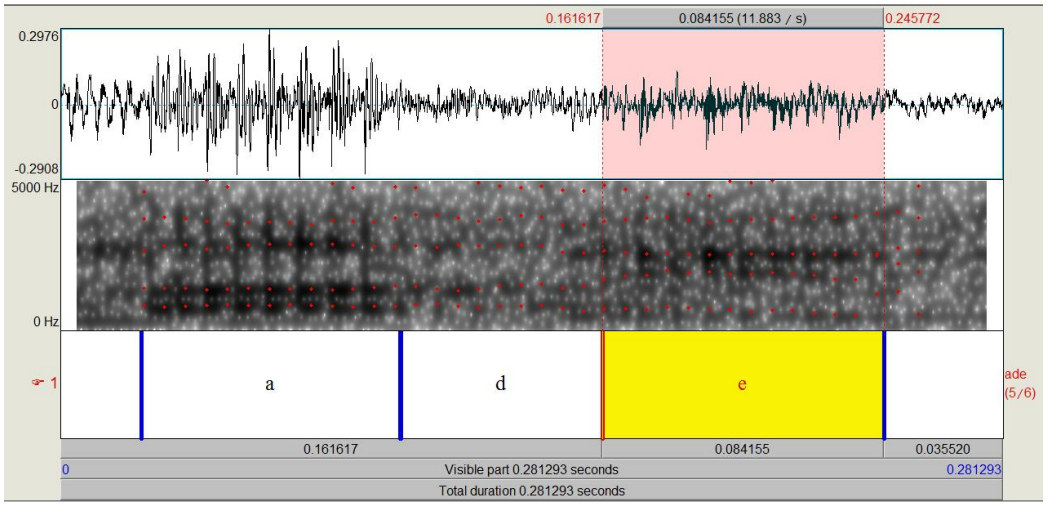


Figure 2.5: Spectrogram of the word *ada* [ID: 937782073608151004].

[18] We should recall that each utterance in Gil et al.'s (2015) corpus has a unique ID number. The ID number presented here is to indicate that the word in the spectrogram is taken from a specific utterance in the corpus.

In Figure 2.5, the word *ada* was coded by Coder 1 as [ada], while Coder 2 coded it as [ade]. The transcription in Figure 2.5 presented here is based on Coder 2's coding. The utterance produced is *di perpustakaan ada* 'there is one in the library.' In this token, the formant values of vowel [-e] in [ade] are 696 Hz (F1) and 1813 Hz (F2). The vowel space between F2 and F1 (F2-F1) is 1117 Hz.

There are fifty-eight tokens of the word *ada* 'exist' that were coded as [ada] by both Coder 1 and Coder 2, i.e., they agree with the IPA transcription. Their distributions are plotted by white diamonds in Figure 2.6. There are sixteen other tokens that were coded as [ada] by Coder 1, but coded as [ade] by Coder 2. Their distributions are plotted by black squares in Figure 2.6 below.

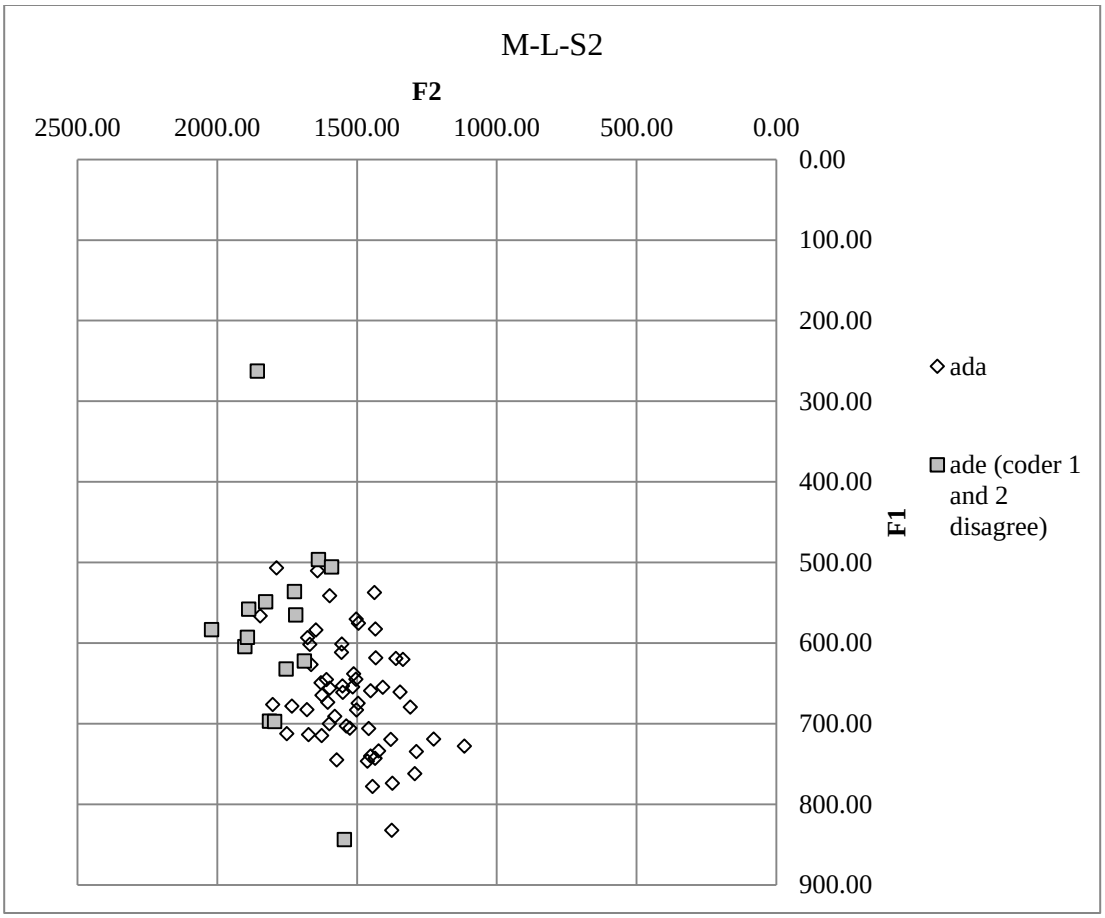


Figure 2.6: F1 and F2 values of word-final [-a] ~ [-e] in [ada] ~ [ade].

The average formant values of final [-a] in [ada] are 664 Hz (F1) and 1520 Hz (F2). The average formant values of final [-e] in [ade] are 583 Hz (F1) and 1777 Hz (F2). The average vowel space (F2-F1) for final [-a] in [ada] is 856 Hz, while final [-e] in [ade] is 1194 Hz. We can see different averages of formant values between final [-e] and [-a] in [ade] and [ada], respectively. The next section discusses the phonetic measurement of word *apa* 'what.'

2.4.2. Results of acoustic measurement of the word *apa*

This section discusses the acoustic measurement of F1 and F2 values word *apa* 'what' that can phonetically be realized as [apa] or [ape]. Figures 2.7 and 2.8 present the examples of spectrograms of two tokens of [apa] and [ape].

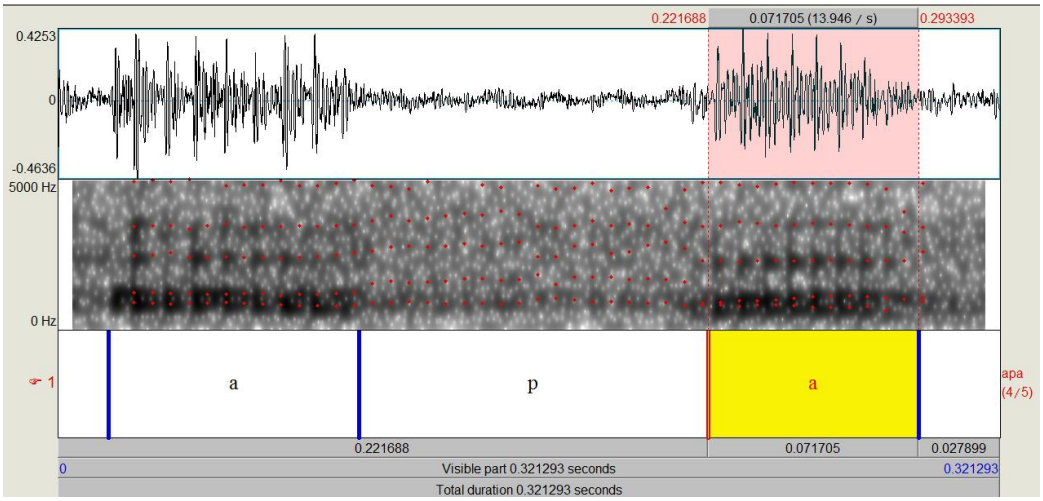


Figure 2.7: Spectrogram of the word *apa* [ID: 139721141855181004].

The spectrogram in Figure 2.7 displays the final [-a] produced by M-L-S2 in word *apa* 'what' in the utterance *mò apa kek* 'anything you like.' Both Coders 1 and 2 agree that the word *apa* should be coded [apa]. The formant values of final [-a] in [apa] are 751 Hz (F1) and 1070 Hz (F2) in this token. The vowel space between F2 and F1 (F2-F1) is 319 Hz. Let us now turn to the word *apa* when it is acoustically realized as [ape] as presented in Figure 2.8 below:

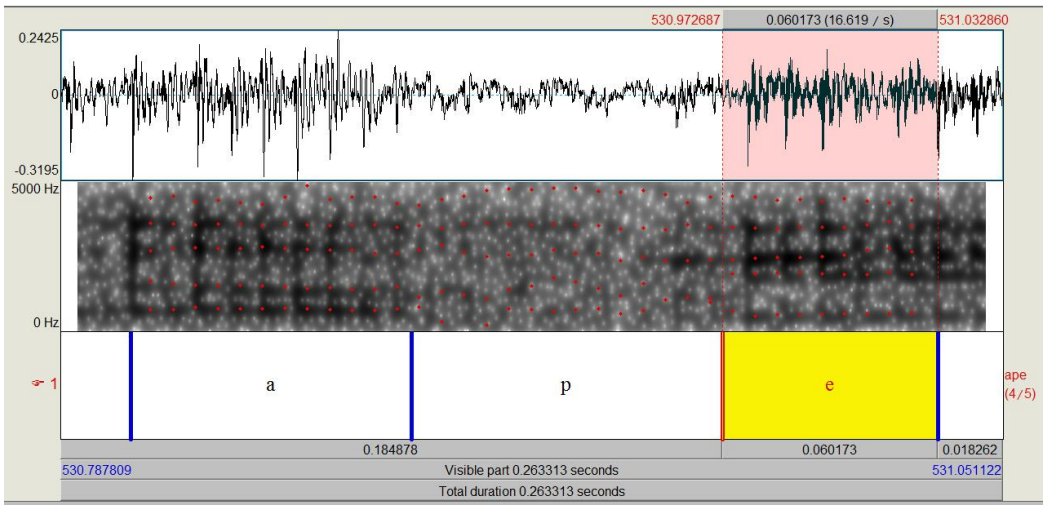


Figure 2.8: Spectrogram of the word *apa* [ID: 705493143310111004].

The word *apa* 'what' is produced in the utterance *beratnya apa ya* 'how much does it weigh?'. Final [-e] in [ape] in Figure 2.8 is not coded in the same way by Coder 1 and Coder 2. Coder 1 coded this word as [apa], while Coder 2 coded it as [ape]. The transcription in Figure 2.8 presented above is based on Coder 2's coding. In this token, the formant values of vowel [-e] are 578 Hz (F1) and 1739 Hz (F2). The vowel space between F2 and F1 (F2-F1) is 1296 Hz.

There are eighteen tokens of word *apa* 'what' in which both Coder 1 and Coder 2 agree with the IPA transcription [apa]. Their distributions are plotted by white diamonds in Figure 2.9 below. There are no tokens of the word *apa* 'what' coded by Coder 1 as [ape]. There are three tokens of word *apa* 'what' were coded as [apa] by Coder 1, but coded as [ape] by Coder 2. Their distributions are plotted by grey squares in Figure 2.9 below.

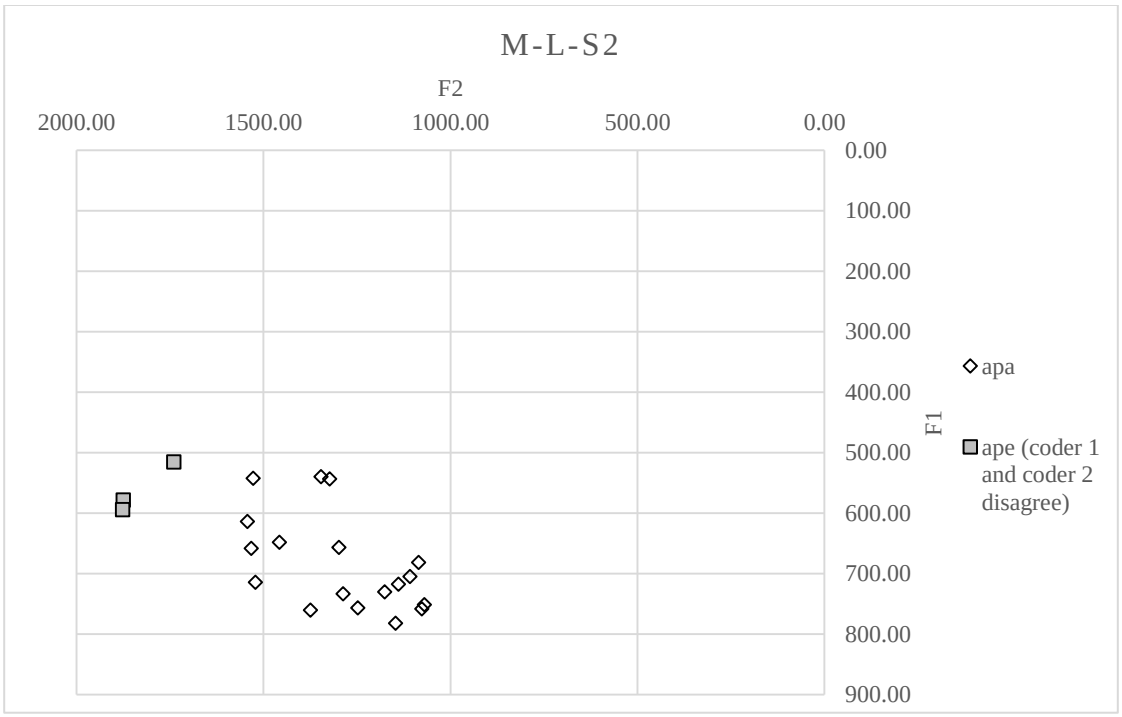


Figure 2.9: F1 and F2 values of word-final [-a] ~ [-e] in [apa] ~ [ape].

The average formant values of final [-a] in [apa] are 683 Hz (F1) and 1292 Hz (F2). The average formant values of final [-e] in [ape] is 562 Hz (F1) and 1831 Hz (F2). The average vowel space (F2-F1) for [-a] in [apa] is 609 Hz, while [-e] in [ape] is 1268 Hz. We can see different averages of formant values between final [-e] and [-a] in [ape] and [apa], respectively.

After we have observed final [-a] and [-e] which were preceded by stops [p] and [d], let us now turn to acoustic measurement for final [-a] and [-e] preceded by palatal nasal [ɲ] in the word *–nya* 'DET/POSS'.

2.4.3. Results of acoustic measurement of the word *–nya*

This section elaborates the F1 and F2 values of final [-a] in [ɲa] and final [-e] in [ɲe] for word *–nya* 'DET/POSS.' The spectrogram in Figures 2.10 and 2.11 display the acoustic realization of [ɲa] and [ɲe] variation.

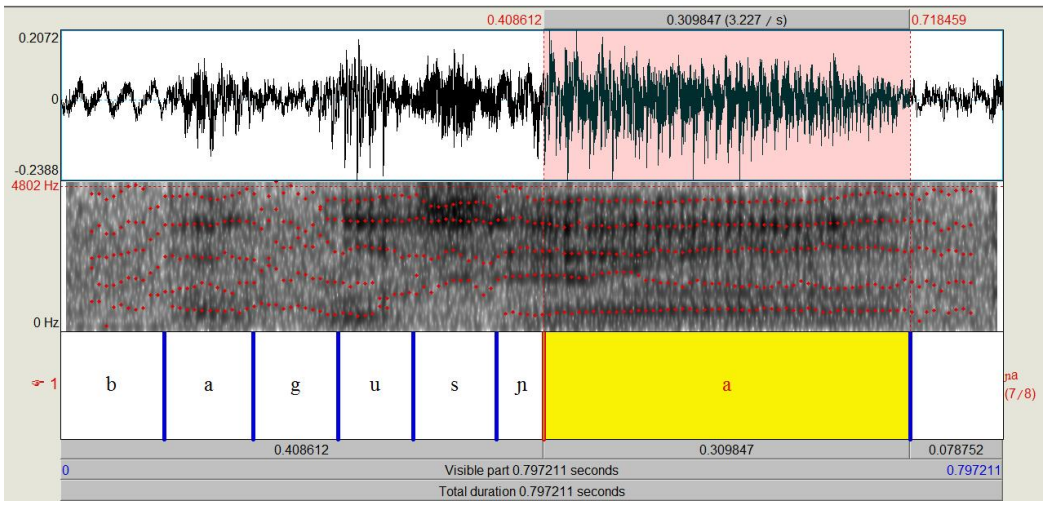


Figure 2.10: Spectrogram of the word *–nya* [ID: 908839150153170904].

The word *–nya* 'DET/POSS' in Figure 2.10 is produced by M-L-S2 in a naturalistic utterance *bagusnya gambarnya itu…* 'the good thing about that picture is…'. Both Coders 1 and 2 agree that the word *–nya* in this utterance should be coded [ɲa]. The formant values of vowel [-a] in [ɲa] are 729 Hz (F1) and 1448 Hz (F2). The vowel space (F2-F1) is 720 Hz. The next figure exhibits the spectrogram of the word *–nya* that is acoustically realized as [ɲe].

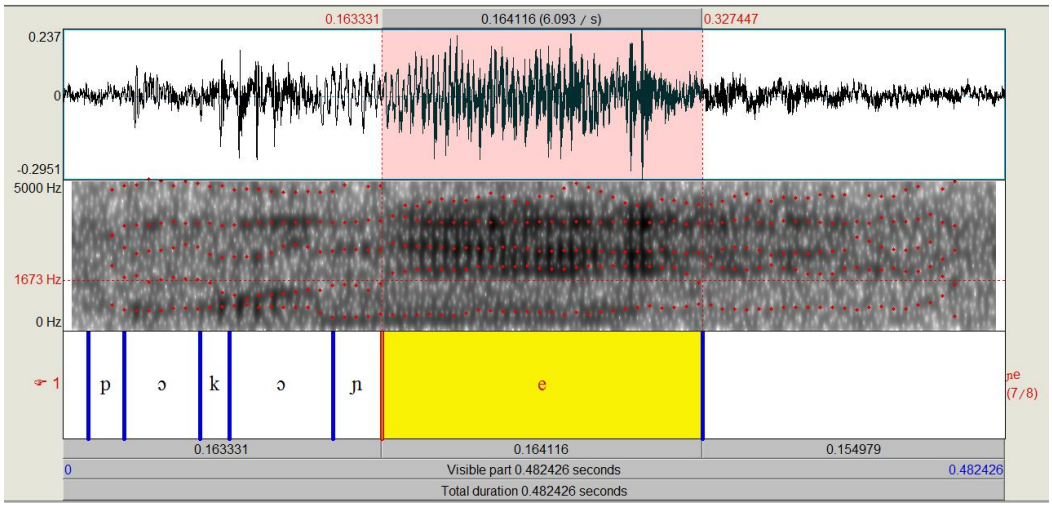


Figure 2.11: Spectrogram of the word *–nya* [ID: 656547112253230904].

The word *–nya* in Figure 2.11 is produced in a naturalistic utterance *pokoknye kalo mulai menanyakan masalah itu…* 'the main thing is if you start to ask about that problem…'. Both Coders 1 and 2 agree that the word *–nya* in this utterance should be coded [ɲe]. The formant values of vowel [-e] in [ɲe] are 599 Hz (F1) and 2064 Hz (F2), and the vowel space (F2-F1) is 1464 Hz.

In Figure 2.12, there are 103 tokens of the word *–nya* which Coders 1 and 2 agree to code it as [ɲa]. Their distributions are plotted by white diamonds. There are sixty-seven tokens of the word *-nya* that Coder 1 and 2 agree to code as [ɲe]. They are plotted by grey squares. There are forty-one tokens of the word *-nya* that Coder 1 coded as [ɲa] and Coder 2 coded as [ɲe]. They are plotted by black triangles.

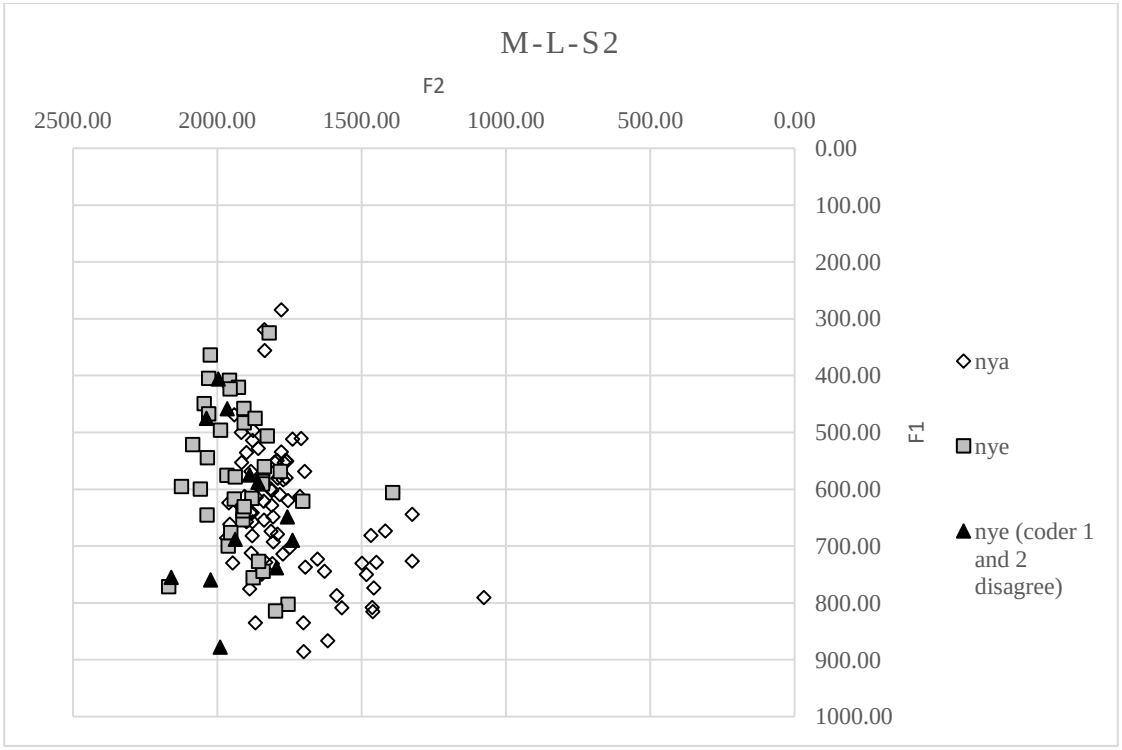


Figure 2.12: F1 and F2 values of final [-a] ~ [-e] in [ɲa] ~ [ɲe].

The average formant values for final [-a] in [ɲa] in which Coders 1 and 2 agree are 646 Hz (F1) and 1748 Hz (F2). The average formant values of final [-e] in [ɲe] in

which Coders 1 and 2 agree are 574 Hz (F1) and 1915 Hz (F2). The average formant values of vowel space (F2-F1) for [-a] in [ɲa] is 1101 Hz, while [-e] in [ɲe] is 1339 Hz. At times, Coder 2 heard [ɲe] where Coder 1 had transcribed [ɲa]. When Coder 1 transcribed [ɲe], Coder 2 did so, too.

The average formant values of final [-e] in [ɲe] (coded [ɲa] by Coder 1) are 611 Hz (F1), 1958 Hz (F2), and 1393 Hz (F2-F1). The average F2-F1 value (1393 Hz) coded by Coder 2 is very close to the F2-F1 value (1339 Hz) of final [-e] in [ɲe] that both coders for agreeing on. The next section elaborates high vowel-glide sequences in word *iya* [ija] 'yes.'

2.4.4. Results of acoustic measurements of word *iya*

The F1 and F2 values of [-a] in [ija] and [-e] in [ije] for word *–iya* are discussed in this section. The spectrogram in Figures 2.13 and 2.14 display the acoustic realization of [ija] and [ije] variation respectively.

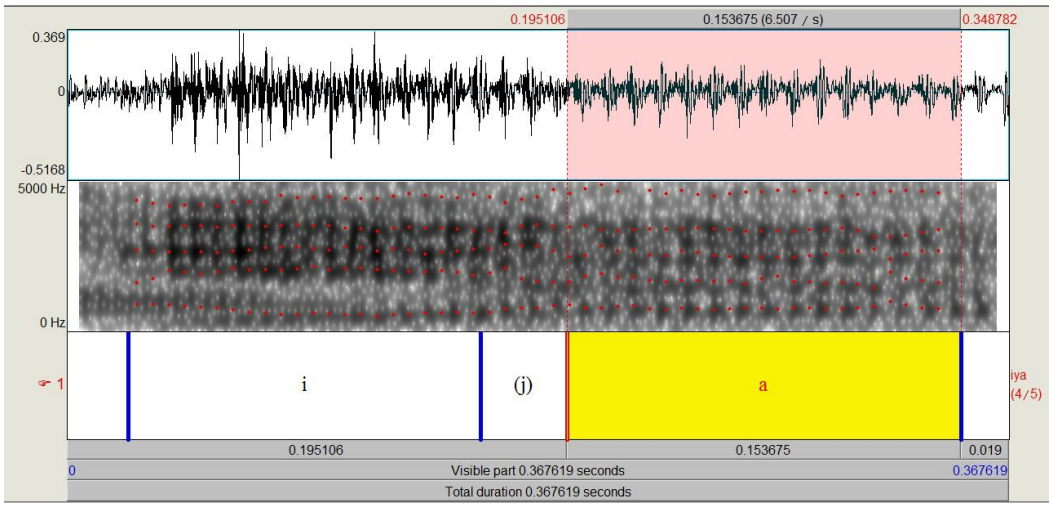


Figure 2.13. Spectrogram of the word *iya* [ID: 668345113247230904].

The word *iya* 'yes' in the spectrogram above is produced in a naturalistic utterance *iya, kayak contohnya ada dulu* 'yeah, as if there was one once'. Both Coders 1 and 2

agree that the word *iya* here should be coded [ija]. The formant values of vowel [-a] in [ija] are 737 Hz (F1) and 1600 Hz (F2), and the vowel space (F2-F1) is 863 Hz in this token. The next figure exhibits the word *iya* that is acoustically realized as [ije].

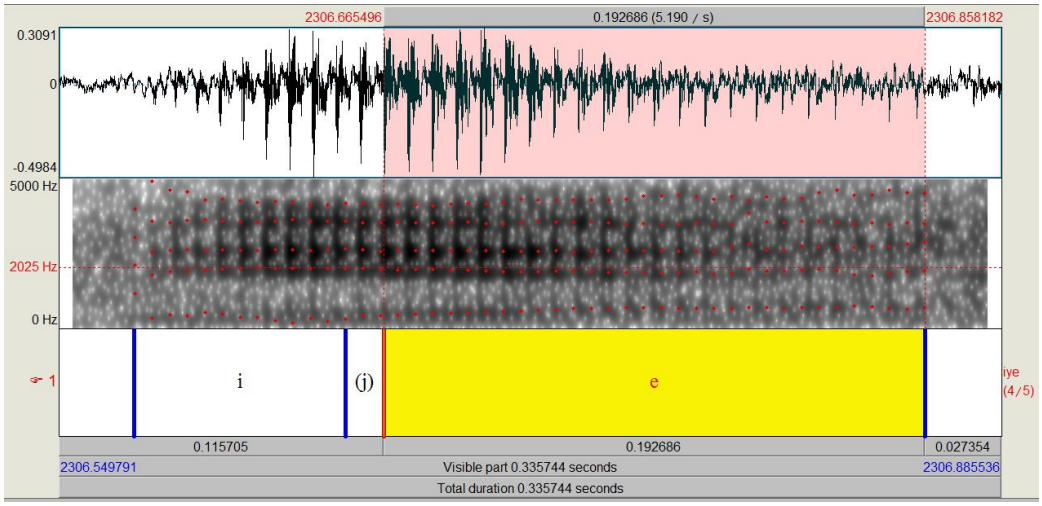


Figure 2.14: Spectrogram of the word *iya* [ID: 792248104514040105].

The word *iya* in the Figure 2.10 above is produced in a single-word utterance *iye* 'yes.' Both Coders 1 and 2 agree that this word should be coded [ije]. In this token, the mid-point of the formant values of the final [-e] in [ije] are 594 Hz (F1) and 1884 (F2), and the vowel space between F2 and F1 (F2-F1) is 1194 Hz. A summary of acoustic measurement of word *iya* is presented in Figure 2.15.

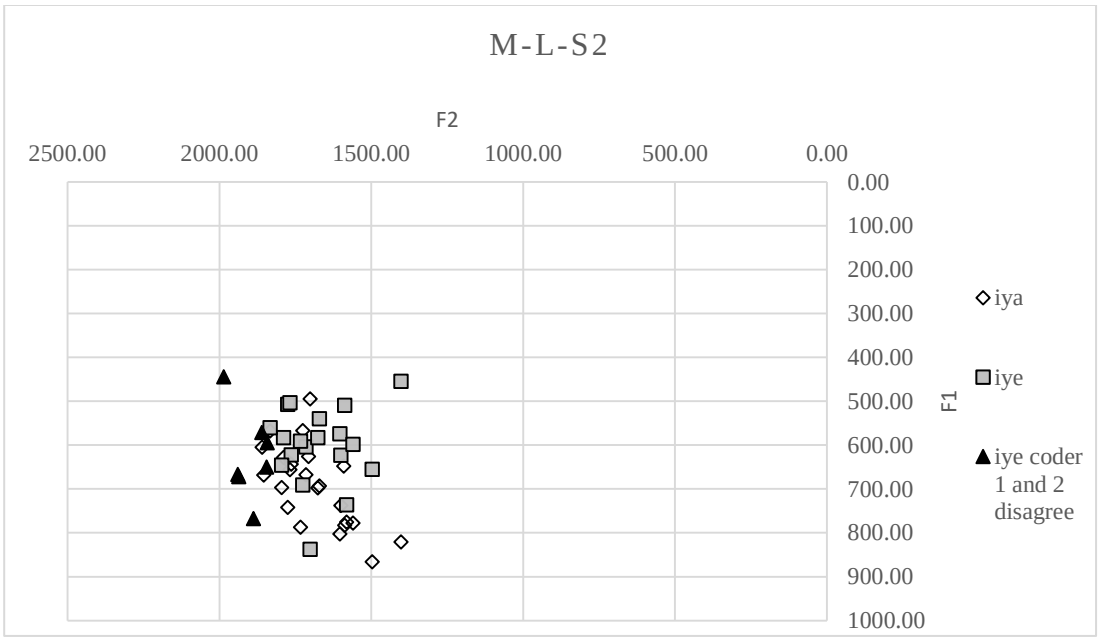


Figure 2.15: F1 and F2 values of final [-a] and [-e] in [ija] ~ [ije].

There are twenty-three tokens of the word *iya* 'yes' where both Coders 1 and Coder 2 agree with the IPA transcription [ija]. Their distributions are plotted by white diamonds in Figure 2.15. There are nineteen tokens of word *iya* 'yes' that both Coder 1 and Coder 2 agree to be [ije]. Their distributions are plotted by grey squares in the chart above. There are nine tokens of word *iya* 'yes' which Coder 1 coded as [ija], and Coder 2 coded as [ije]. Their distributions are plotted by black triangles.

Similar to the results for word form *–nya* in the previous section, the results in Figure 2.15 for word *iya* also show that for some tokens, Coders 1 and 2 have reached different impressionistic judgments. The average formant values of final [-a] in [ija] in which both coders agree are 693 Hz (F1) and 1687 Hz (F2), and the average vowel space (F2-F1) is 984 Hz. The average formant values of final [-e] in [ije] in which both coders agree are 601 Hz (F1) and 1937 Hz (F2), and the average vowel space (F2-F1) is 1336 Hz. We can see different averages of formant values between final [-e] and [-a] in [ije] and [ija] respectively.

Interestingly, all the tokens transcribed as [ije] by Coder 1 were also be transcribed as [ije] by Coder 2. But in the case of [ija], there were some tokens of *iya* that coded as [ija] by Coder 1 but coded [ije] by Coder 2.

The average formant values of final [-e] in [ije] coded by Coder 2 (coded [ija] by Coder 1) are 624 Hz (F1), 1900 Hz (F2), and 1275 Hz (F2-F1). This average F2-F1 value (1275 Hz), as coded by Coder 2, is much closer to the F2-F1 value (1336 Hz) agreed by both coders for final [-e] in [ije], than average F2-F1 (984 Hz) that belongs to [-a] in [ija]. It looks like the impressionistic coding done by Coder 2 is more accurate than Coder 1.

I provide the summary of the acoustic measurement in the next section.

2.4.5. Summary

We have seen so far that final [-a] and [-e] have different formant values. The table below provides the summary of the acoustic measurements of the nine function words.

Table 2.7: Summary of average F1 and F2 values in Hertz.

No	IPA (coders agree)	IPA (coded [-a] by Coder 1, but coded [-e] by Coder 2)	Average F1	Average F2	Average F2-F1
1	[ada]		664	1520	856
2	[ade]		N/A	N/A	N/A
3		[ade]	583	1773	1190
4	[apa]		683	1292	609
5	[ape]		N/A	N/A	N/A
6		[ape]	562	1831	1268
7	[ad͡ʑa]		601	1687	1086
8		[ad͡ʑe]	508	1910	1402
9	[ɲa]		646	1748	1101
10	[ɲe]		574	1915	1339
11		[ɲe]	611	1958	1393
12	[ija]		693	1687	984
13	[ije]		601	1937	1336
14		[ije]	624	1900	1275

In Table 2.7, the second column provides IPA transcriptions in which both Coders 1 and 2 agree, while the third column displays the IPA transcription in which Coder 1 and Coder 2 disagree. In the third column, the final vowel in 3, 6, 8, 11, and 14 are coded [-a] by Coder 1 but coded [-e] by Coder 2. Thus far, the transcriptions of vowel [-e] provided by Coder 2 for [ade], [ape], [ɲe], and [ije] match the reference values of vowel space (F2-F1) in Figure 2.2. The reference value of F2-F1 for [-a] is around 500 Hz and [-e] is around 1100 Hz. We could see that the F2-F1 values in 3, 6, 8, 11, and 14 are very much closer to 1100 Hz than to 500Hz.

Based on this evidence, we can see that Coder 1 has a tendency to code the sounds in a direction towards SI orthography. In SI, final [-e] is not considered a variation of [-a] in the words listed in 3, 6, 9, and 10, since they are never used, and it

is always written <a> and never <e>.[19] I have not found them listed as entries on the online official dictionary of Indonesian (Center for Language Advancement and Development, 2016) and Indonesian-English dictionary by Stevens & Schmidgall-Tellings (2004). This situation happens across the words listed in Table 2.6. To this point, the coding done by Coder 2 is impressionistically and phonetically more reliable than the coding done by Coder 1. Therefore, the transcriptions for nine words produced by twenty-eight speakers involved in this study are re-coded by Coder 2. Each token was listened to and the spectrogram was visually examined.

Another interesting point that should be noted here is that the different formant values between [-e] in [ade] and [ape] as opposed to [-e] in [ɲe] and [ije]. Due to phonetic conditioning, the F2-F1 values for [ɲe], [ije] are higher than [ade], [ape]. The preceding segments play an important role in this phonetic conditioning. Final [-e] that is preceded by palatal nasal [ɲ-] and high vowels-glide sequences [ij-] seem to show wider vowel space (F2-F1) than the final [-e] that is preceded by stops [d-] and [p-].

Finally, I present the general distribution of final [-a] and [-e] produced by M-L-S2 based on acoustic observation on word *ada*, *apa*, *nya*, and *iya*. The white diamonds represent the distribution of formant values of final [-a], and the grey squares show the distribution of formant values of final [-e].

[19] Using the same corpus, Cohn and Kurniawan (to appear) found that variable schwa is often coded by the coders but actually was not phonetically present. Again, this is likely to be an influence from the Indonesian orthography.

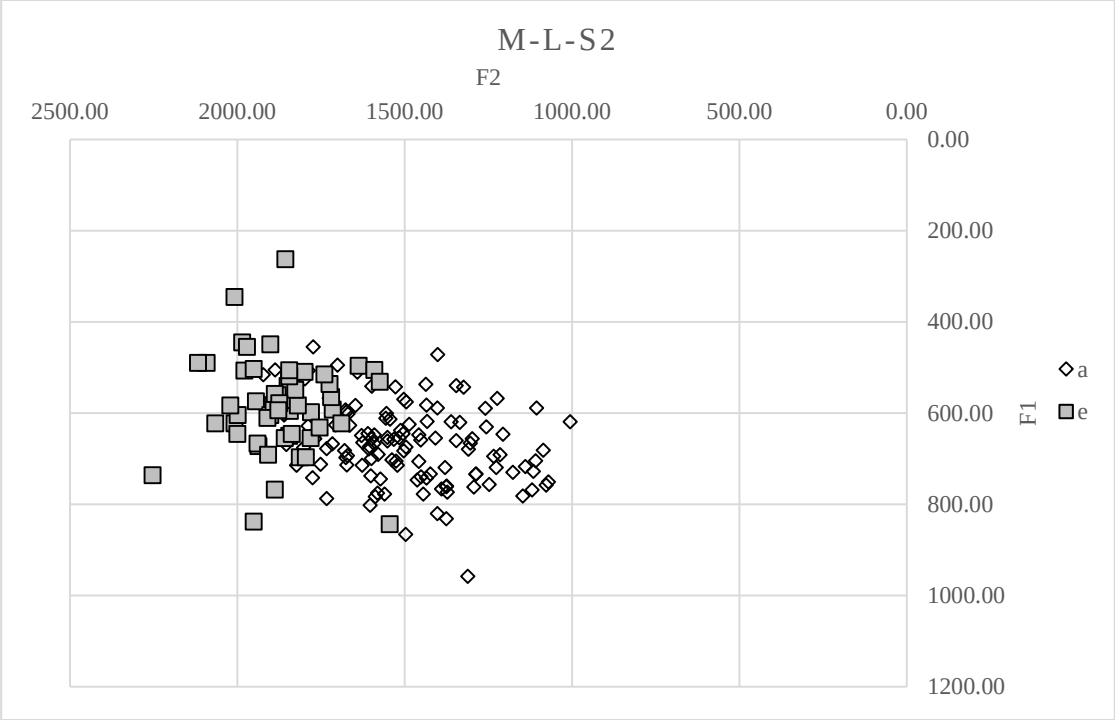


Figure 2.16: General F1 and F2 values of word-final [-a] ~ [-e].

Based on the observation of one speaker of JI, the scatter diagram above shows us that there is a general phonetic pattern for final [-a] and [-e] in JI. Impressionistically and acoustically, the results in this section have shown us that these two vowels have distinct phonetic characteristics.

In section 2.5, I further investigate this pattern of variation shown by twenty-eight speakers of JI and examine how certain patterns of this variation might be conditioned by linguistic and social factors.

2.5. Finding from corpus study

This section is devoted to presenting the variation patterns of [-a] ~ [-e] in function words already described in 2.2. This section is divided into three parts. The first part discusses the results of the observation on the 2000s corpus. The second part of this section presents the findings from the 1970s corpus by Wallace (1976) and compares the findings from the 1970s with the findings from the 2000s corpus. The third part

provides a discussion of how these findings may provide a more comprehensive insight into our understanding of the development of JI.

All the percentages presented in this section are the percentages of occurrences of the variant with final [-e] out of the total tokens of the variant with final [-a] and the variant with final [-e]. In other words, the percentages of the variant with final [-a] and the variant with final [-e] put altogether 100% of the total results.

The patterns of use by adult male speakers are examined first. Second, the patterns of use by adult female speakers are presented, and finally, the patterns of use by pre-adolescent speakers are discussed. The hypothesis proposed in this chapter is that JI adult and pre-adolescent speakers in the 2000s corpus produce final [-e] less than JI adult speakers in the 1970s corpus. This study also proposes that female speakers produce final [-e] less than male speakers, and speakers of higher educational background produce final [-e] less than speakers of lower educational background. Let us now first observe the result from adult male speakers from the 2000s corpus.

2.5.1. Results of the 2000s corpus - adult male speakers

As I mentioned in 2.3, there are ten adult male speakers from the 2000s corpus observed in this study. They consist of five speakers of higher educational background and five other speakers of lower educational background.

Tables 2.8 and 2.9 below display the actual number of tokens produced by five adult male speakers of lower educational background and five adult speakers of higher educational background respectively.

Table 2.8: Final [-a] ~ [-e] produced by male adult speakers of lower educational background

Word form	Final [-a]	Final [-e]	Total	Percentage of [-e]
ya	219	92	311	30%
iya	91	81	172	47%
nya	322	224	546	41%
dia	74	32	106	30%
aja	145	16	161	10%
ada	158	117	275	43%
apa	54	6	60	10%
dua	47	0	47	0%
gua	348	2	350	1%
TOTAL	1,458	570	2,028	28%

Table 2.9: Final [-a] ~ [-e] produced by male adult speakers of higher educational background

Word form	Final [-a]	Final [-e]	Total	Percentage of [-e]
ya	465	70	535	13%
iya	216	22	238	9%
nya	433	63	496	12%
dia	100	5	105	5%
aja	144	4	148	3%
ada	159	7	166	4%
apa	172	2	174	1%
dua	46	0	46	0%
gua	236	4	240	2%
TOTAL	1,971	177	2,148	8%

In these tables, the first column lists the nine function words under investigation, the second column presents the occurrences of the variant with final [-a], the third column shows the occurrences of the variant with final [-e], the fourth column is the total occurrences of the variant in question with both of [-e] and [-a], and the fifth column displays the percentages of the variant with final [-e]. All the numbers presented in Tables 2.7 and 2.8 are the occurrences across the five speakers from each group. For example, five male speakers of lower educational background produced a total of words *ya* ‘yes’ 311 times. In these 311 times of the total

production, the variant with final [-a] are produced 219 times (70%) and the variant with final [-e] are produced 92 times (30%).

The bottom row in both tables shows the total occurrences of each variant across the speakers and across the function words. The total occurrences of the nine function words across five male speakers of lower educational background is 2,028 times. In these 2,028 times of the total production, the variant with final [-a] are produced 1,458 times (72%) and the variant with final [-e] are produced 570 times (28%). The total occurrences of the nine function words across five male speakers of higher educational background is 2,148 times. In these 2,148 times of the total production, the variant with final [-a] are produced 1,971 times (92%) and the variant with final [-e] are produced 177 times (8%).

Overall, this shows that the variant with final [-a] is far more frequently produced than the variant with final [-e] across function words and speakers' educational backgrounds. To make it clear, I present the results of the final vowel [-e] in Figure 2.17.

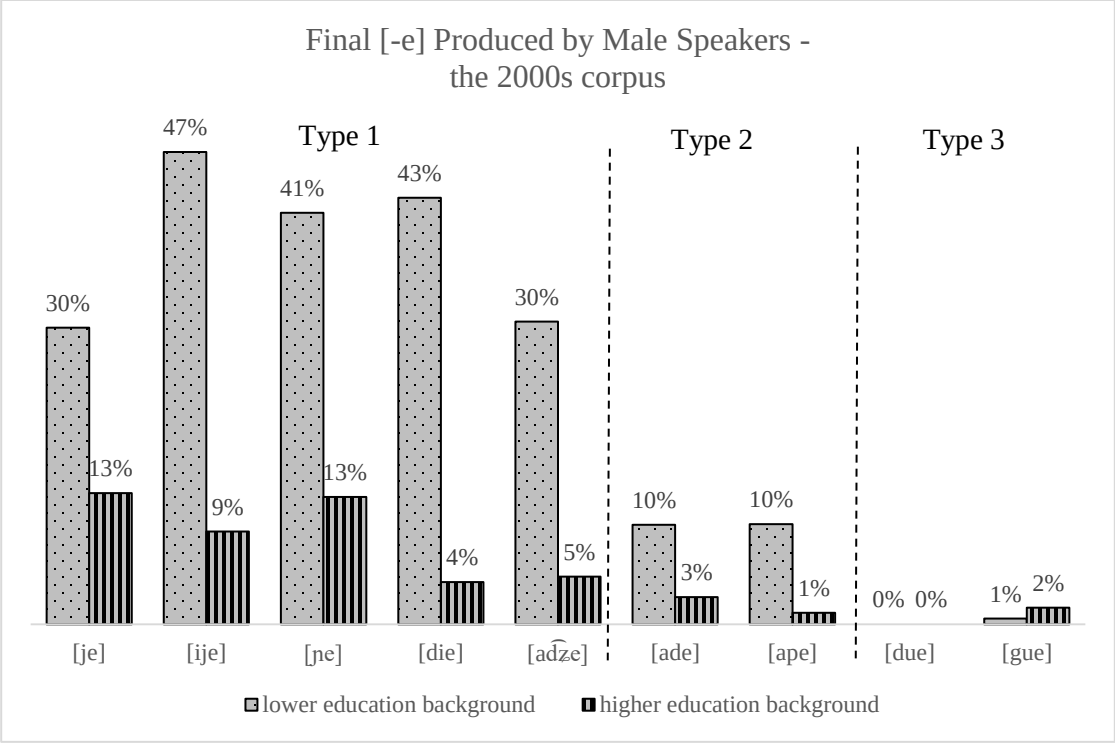


Figure 2.17: The percentages of final [-e] produced by five adult male speakers of lower educational background are indicated by the bars with dots, and the percentages produced by five adult male speakers of higher educational background are exhibited by the bars with stripes.

Figure 2.17 shows only the percentages of the variant with final [-e]. Overall, the variant with final [-e] occurs less than 50% of the time. In other words, the variant with final [-e] occurs less than the variant with final [-a] across the function words and all speakers. For example, 30% of the tokens of *ya* 'yes' were produced as [je] by five speakers of lower educational background (the percentage of [ja] is, therefore, 70%— not presented in the figure). In another example, 13% of the tokens of *ya* 'yes' were produced as [je] by the five speakers of higher educational background (the percentage of [ja] is, therefore, 87%— not presented in the figure). The function words fall into three categories based on the percentage of final [-e]. The function words that fall into Type 1 category are the words with the highest occurrences of [-e]. [-e] occurs less frequently in Type 2 category than in Type 1 but more than in Type 3.

Interestingly, the type categories seem related to the place of articulation of the preceding segments. It seems that the place of articulation of the preceding segment also affects the choice of [-e] over [-a]. The Type 1 forms are preceded either by high front vowel [i] or glide [j] in [je], [i(j)e], [di(j)e], palatal nasal [ɲ] in [ɲe], and affricate [d͡ʑ] in [ad͡ʑe]. [20] The Type 2 forms are preceded by stop [d] in [ade] and [p] in [ape]. The Type 3 forms are preceded by high back vowel [u] in [gue] and [due].

Based on the corpus results, the function words with final [-e] preceded by a high front vowel [i], glide [j] in palatal nasal [ɲ], and affricate [d͡ʑ] (Type 1) have higher percentages than those preceded by stops [d] and [p] (Type 2), and those preceded by high back vowel [u] (Type 3) have lesser percentages than stop [d] and [p].

Thus, these percentage differences appear to be phonetically conditioned. I leave this as a question for future investigation. For our purposes, looking at socio-indexical properties of the Type 1 forms are most informative. Therefore I leave aside Type 2 and 3 where little or no difference observed. We now turn to the effect of educational background focusing on the Type 1 forms.

The results from speakers of lower educational background show higher percentages of the variant with final [-e] than the speakers of higher educational background. For speakers of lower educational background, the percentages of occurrence of [je], [ije], [ɲe], [die], and [ad͡ʑe] is between 30% - 47%. For the speakers of higher educational background, the percentages of [je], [ije], [ɲe], [die], and [ad͡ʑe] are between 5% - 13%.

[20] I oftentimes hear the speakers produced [ɲ] ~ [j] and [d͡ʑ] ~ [j] in variation. For example, word form *buku-nya* 'book-DET/POSS' may be pronounced [bukuɲe] or [bukuje], and word form *aja* 'just' may be pronounced [ad͡ʑe] or [aje]. It might be that the weakening processes of [ɲ] > [j] and [d͡ʑ] > [j] are currently happening, especially in the fast speech. However, these patterns of variation of [ɲ] ~ [j] and [d͡ʑ] ~ [j] are beyond the scope of this current investigation.

This indicates that the male speakers of lower educational background, in general, have more robust occurrence for the variant with final [-e] than speakers of higher educational background. Thus, although the percentages of the variant with final [-e] produced by speakers of higher educational background are much less than those produced by speakers of lower educational background, a similar pattern obtains in the categories of their representation among the tokens.

Let us now turn to the results from adult female speakers.

2.5.2. Results of the 2000s corpus - adult female speakers

This study looks at data from an equal number of female and male speakers. There were five adult female speakers of higher educational background and five others with a lower educational background. The results are presented in Tables 2.10 and 2.11 where the actual numbers of tokens produced by five adult female speakers from the lower educational background and five adult female speakers from the higher educational background are displayed.

Table 2.10: Final [-a] ~ [-e] produced by female adult speakers of lower educational background

Word form	[-a]	[-e]	Total	Percentage of [-e]
ya	228	9	237	4%
iya	138	19	157	12%
nya	377	12	389	3%
dia	72	5	77	6%
aja	67	2	69	3%
ada	128	0	128	0%
apa	102	0	102	0%
dua	50	0	50	0%
gua	13	1	14	7%
TOTAL	1,175	48	1,223	4%

Table 2.11: Final [-a] ~ [-e] produced by female adult speakers of higher educational background

Word form	[-a]	[-e]	Total	Percentage of [-e]
ya	343	12	355	3%
iya	146	5	151	3%
nya	499	6	505	1%
dia	121	3	124	2%
aja	58	1	59	2%
ada	111	0	111	0%
apa	226	3	229	1%
dua	14	0	14	0%
gua	12	0	12	0%
TOTAL	1,530	30	1,560	2%

The bottom row in both tables shows the total occurrences of each final vowel variation across the speakers and across the function words. The total number of tokens of the nine function words across five female speakers of lower educational background is 1,223 times. Of these 1,223 tokens, the variant with final [-a] is produced 1,175 times (96%) and the variant with final [-e] are produced 48 times (4%). The total number of tokens of the nine function words across five female speakers of higher educational background is 1,560 times. In these 1,560 times of the total production, the words with final [-a] are produced 1,530 times (98%) and the words with final [-e] are produced thirty times (2%). The results in Tables 2.9 and 2.10 indicate that the occurrence of the variant with final [-a] is much more robust than that of the variant with final [-e]. This is true for all function words, all female speakers, and when speakers are classified by educational background. Thus, there is a robust difference between male and female speakers.

As with the male speakers, we leave aside [ade], [ape] (Type 2), [due], [gue] (Type 3), and focus only on [je], [ije], [ɲe], [die], [ad͡ʑe] (Type 1) where considerable

variation was observed for male speakers (indicated with a double line in the tables above.

To give a detailed picture, let us now observe Figure 2.18 that shows the percentages of the variant with final [-e] by word form.

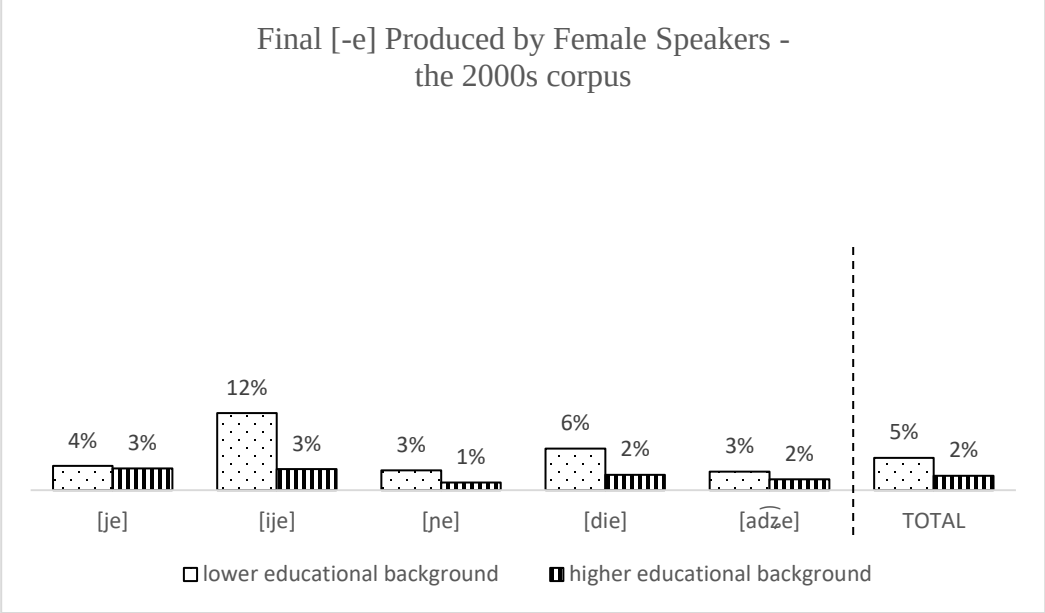


Figure 2.18: The x-axis provides the percentages of the final [-e] of the function words. The percentages produced by five adult female speakers of lower educational background are indicated by the bars with dots, and the percentages produced by five adult female speakers of higher educational background are shown by the bars with stripes.

Figure 2.18 above presents only the percentages of the variant with final [-e]. For example, 4% of the total occurrence of *ya* 'yes' is [je] in the results from five speakers of lower educational background (the number of occurrences of [ja] is thus 96%; not presented in the figure).

Unlike the results from the male adult speakers, the results from the female adult speakers do not show large differences between words and social categories. The low percentage to the tokens ending in [-e] (at most 12% with an average of 5%) suggests that in any case, the occurrence of final [-e] in function words, across the

speakers, and across educational backgrounds is less than that for male speakers. Notably, this is independent of educational background.

While both males and females show that tokens with final [-a] in these forms are of higher occurrences than those with final [-e], the relative difference is very substantial. Strikingly, the relative rate of [-e] vs. [-a] is very different as male speakers depending on educational background. For female speakers, the educational background does not correlate with the choice of the variant with final [-e] over the variant with final [-a]. Regardless of their educational background, female adult speakers of JI are rarely choosing the variant with final [-e] in function words.

The male adult speakers of JI are less restricted than the female speakers in choosing the variant with final [-e]. Although the male adult speakers produce fewer tokens with final [-e] than with final [-a], their production of the variant with final [-e] is much more robust than in the case of the adult female speakers. Educational background conditions the occurrences of the variant with final [-e] among the male speakers. The male speakers of lower educational background produce more variant with final [-e] than the speakers of higher educational background. This variant is conditioned by both linguistic factor (in particular preceding factor) and social factor. Now let us turn to the results from the younger generation of JI speakers in the following section.

2.5.3. Results of the 2000s corpus - pre-adolescent speakers

There are a total of eight pre-adolescent speakers involved in this current investigation. As I explained in Chapter One, we cannot use their educational background for their social category since they are all elementary school students. Therefore, the social category used here is their parents' educational background. These speakers include two female speakers whose parents are of lower educational

background, three female speakers whose parents are of higher educational background, two male speakers whose parents are of lower educational background, and one male speaker whose parents are of higher educational background.

The results from pre-adolescent speakers mirror the results from female adult speakers. The function words produced with final [-e] have less than 1% occurrence across the words, across the speakers, and across parents' educational background. Let us begin with the tables that represent the production from female speakers.

Table 2.12: Final [-a] ~ [-e] produced by female pre-adolescent speakers (parents of lower educational background)

Word form	[-a]	[-e]	Total	Percentage of [-e]
ya	223	0	223	0%
iya	92	0	92	0%
nya	289	0	289	0%
dia	9	0	9	0%
aja	57	0	57	0%
TOTAL	670	0	670	0%

Table 2.13: Final [-a] ~ [-e] produced by female pre-adolescent speakers (parents of higher educational background)

Word form	[-a]	[-e]	Total	Percentage of [-e]
ya	188	1	189	1%
iya	74	1	75	1%
nya	292	1	293	0%
dia	26	0	26	0%
aja	82	1	83	1%
TOTAL	662	4	666	0.6%

In the bottom row of Table 2.12, we can see that the total occurrences of the function words produced by five female pre-adolescent speakers whose parents are from a lower educational background are 670 tokens, and none of them (0%) are produced with final [-e]. The production from female pre-adolescent speakers whose parents are from a higher educational background shows similar results. As shown in

Table 2.13, the total occurrences of the function words produced by five female pre-adolescent speakers whose parents are of higher educational background are 666 times. There are only four tokens out of 666 tokens (less than 1%) produced with final [-e]. This tells us that the female pre-adolescent speakers have a very limited occurrence of final [-e].

Almost identical to the results from female pre-adolescent speakers, there is no (0%) variant with final [-e] produced by male pre-adolescent speakers regardless of their parents' educational background. Tables 2.14 and 2.15 below display the actual occurrences and the percentage of the variant with final [-e] production.

Table 2.14: Final [-a] ~ [-e] produced by male pre-adolescent speakers (parents of lower educational background)

Word form	[-a]	[-e]	Total	Percentage of [-e]
ya	10	0	10	0%
iya	6	0	6	0%
nya	7	0	7	0%
dia	0	0	0	0%
aja	3	0	3	0%
TOTAL	26	0	26	0%

Table 2.15: Final [-a] ~ [-e] produced by male pre-adolescent speaker (parents of higher educational background)

Word form	[-a]	[-e]	Total	Percentage of [-e]
ya	9	0	9	0%
iya	1	0	1	0%
nya	22	0	22	0%
dia	1	0	1	0%
aja	4	0	4	0%
TOTAL	37	0	37	0%

The bottom row in both tables shows us the total occurrences of the function words produced by the male pre-adolescent speakers. In Table 2.14 the total occurrences of function words produced by two pre-adolescent speakers whose parents are of lower educational background are twenty-six times, and none of them

(0%) is produced with final [-e] variation. In Table 2.15, the total occurrences of function words produced by one pre-adolescent speaker whose parents are of higher education background are thirty-seven times, and none of them (0%) is produced with the variant with final [-e].

The results from pre-adolescent speakers indicate that the occurrence of the variant with final [-e] is very limited across function words, genders, and their parents' educational background. It should be noted here that the numbers of pre-adolescent speakers and the amount of data are quite limited. Therefore, the results presented here can only be taken as suggestive.

Thus far, we have seen that the patterns of use of the variant with final [-e] across function words exhibit similar and different aspects cross-generationally. The difference in the patterns of use between these two generations may be a sign of linguistic change in progress, and the similarity might indicate a faithful linguistic transmission. The results from the adult male speakers indicate that the variant with final [-e] as a trace from the older form, was still preserved. On the other hand, the results from the adult female speakers demonstrate that this group does not seem to preserve the older form, and pre-adolescent speakers appear to follow the female speakers' patterns of use of the variant with final [-e].

To have a further understanding, it is important to see how previous generations of JI speakers used this pattern of variation and observe its relation to the results we have thus far. Wallace's (1976) study provides us with more information on how this variation functioned among speakers in the 1970s. In the next section, I will present the results of his study and relate them to the results from the data of the 2000s corpus.

2.5.4. Results from the 1970s corpus - male speakers

From his larger corpus, Wallace (1976) investigated six male adult speakers of lower educational background and four male adult speakers of higher educational background. He also included five female adult speakers of lower educational background and two female speakers of higher educational background.

Using Wallace's corpus, here I include more speakers so that the total numbers of speakers we have now are fifteen male adult speakers of lower educational background, nine male adult speakers of higher educational background, nine female adult speakers of lower educational background, and two adult female speakers of higher educational background.

The results are divided into two main parts: the results from male speakers and the results from female speakers. First, let us now observe the results from male speakers. There is a high frequency of occurrence of the variant with final [-e] among male adult JI speakers in the 1970s. Tables 2.16 and 2.17 present the percentage of forms with [-e] and the number of actual tokens produced by male adult speakers of lower and higher educational background respectively.

Table 2.16: Final [-a] ~ [-e] produced by male adult speakers of lower educational background - the 1970s corpus

Word Form	[-a]	[-e]	Total	Percentage of [-e]
ya	16	151	167	90%
iya	5	182	187	97%
nya	18	225	243	93%
dia	1	99	100	99%
aja	0	63	63	100%
TOTAL	40	720	760	95%

Table 2.17: Final [-a] ~ [-e] produced by male adult speakers of higher educational background - the 1970s corpus

Word Form	[-a]	[-e]	Total	Percentage of [-e]
ya	5	19	24	79%
iya	0	12	12	100%
nya	4	96	100	96%
dia	1	33	34	97%
aja	0	19	19	100%
TOTAL	10	179	189	95%

In Tables 2.16 and 2.17, we can see that the percentage of the variant with final [-e] produced by the male adult speakers of both lower and higher educational background is 95%. In short, the male adult speakers irrespective of educational level represented in the 1970s corpus produced a very large percentage of the variant with final [-e].

Figure 2.19 presents the results from male adult speakers from the 1970s corpus in comparison with the results from male adult speakers and pre-adolescent speakers from the 2000s corpus.

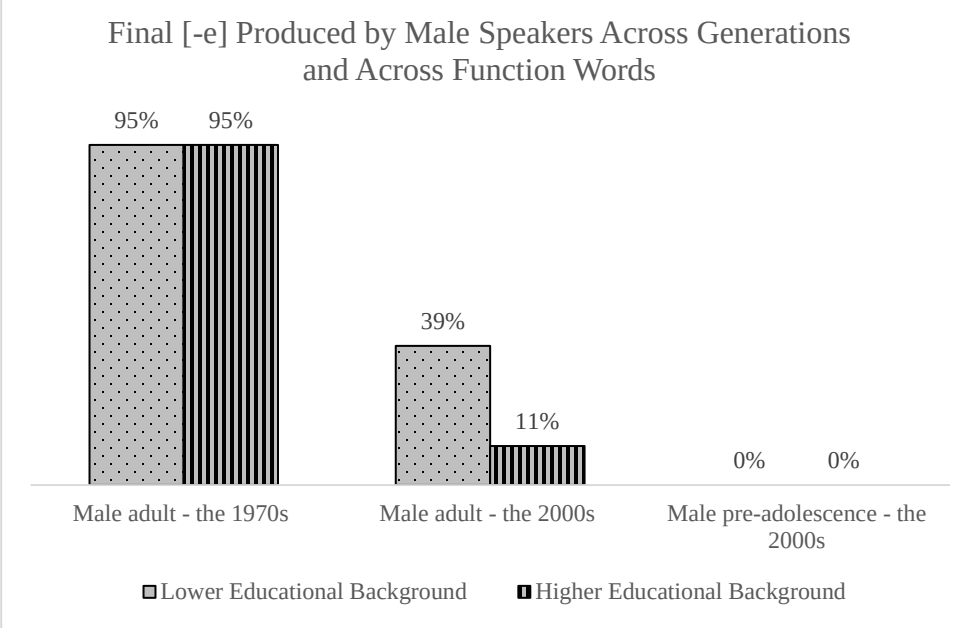


Figure 2.19: The percentages of final [-e] produced by speakers of lower educational background are indicated by the bars with dots, and the percentages of final [-e] produced by speakers of higher educational background are displayed by the bars with stripes.

In Figure 2.19, the three corpora are the 1970s adult speech corpus, the 2000s adult speech corpus, and the 2000s pre-adolescent speech corpus. The results show that the patterns of occurrence of the variant with final [-e] in the 2000s results differ from those of the 1970s results. In the 1970s results, the occurrence of the variant with final [-e] produced by male adult speakers of lower educational background and male adult speakers of higher educational background is 95%. The 2000s results show that the percentage of the variant with final [-e] produced by male adult speakers of lower educational background is 39% and male adult speakers of higher educational background is 11%. The 2000s results also show that the male pre-adolescent speakers did not produce the variant with final [-e] at all, regardless of their parents' educational background.

We can see here that there is a sharp decline in the occurrence of [-e] from the 1970s male adult results to the 2000s male adult results. Further, the 2000s male pre-

adolescent results show an even more limited use of the variant with final [-e] in function words. I will now turn to the results from female speakers.

2.5.5. Results of the 1970s corpus - female speakers

The results from female speakers in the 1970s Corpus exhibit some similarities and some differences from male speakers. The results presented in Tables 2.18 and 2.19 show the percentage of [-e] and the actual number of tokens produced by the female adult speakers of lower and higher educational background.

Table 2.18: Final [-a] ~ [-e] produced by female adult speakers of lower educational background - the 1970s corpus

Word Form	[-a]	[-e]	Total	Percentage of [-e]
ya	3	30	33	91%
iya	1	14	15	93%
nya	2	55	57	96%
dia	0	16	16	100%
aja	0	12	12	100%
TOTAL	6	127	133	95%

Table 2.19: Final [-a] ~ [-e] produced by female adult speakers of higher educational background - the 1970s corpus

Word Form	[-a]	[-e]	Total	Percentage of [-e]
ya	11	25	36	69%
iya	6	13	19	68%
nya	9	29	38	76%
dia	4	16	20	80%
aja	3	11	14	79%
TOTAL	33	94	127	74%

Table 2.18 shows that the female adult speakers of lower educational background in total produced 95% the variant with final [-e], a result similar to those from the results from the male adult speakers given in Tables 2.16 and 2.17. For higher educational category, the percentage of the variant with final [-e] produced by the female adult

speakers is 74%.

By juxtaposing the results from female adult speakers from the 1970s corpus with the results from female adult speakers and pre-adolescent speakers from the 2000s corpus in Figure 2.20 below, we can see similar patterns of shift from [-e] as that seen for male speakers we have observed in Figure 2.19, but more advanced.

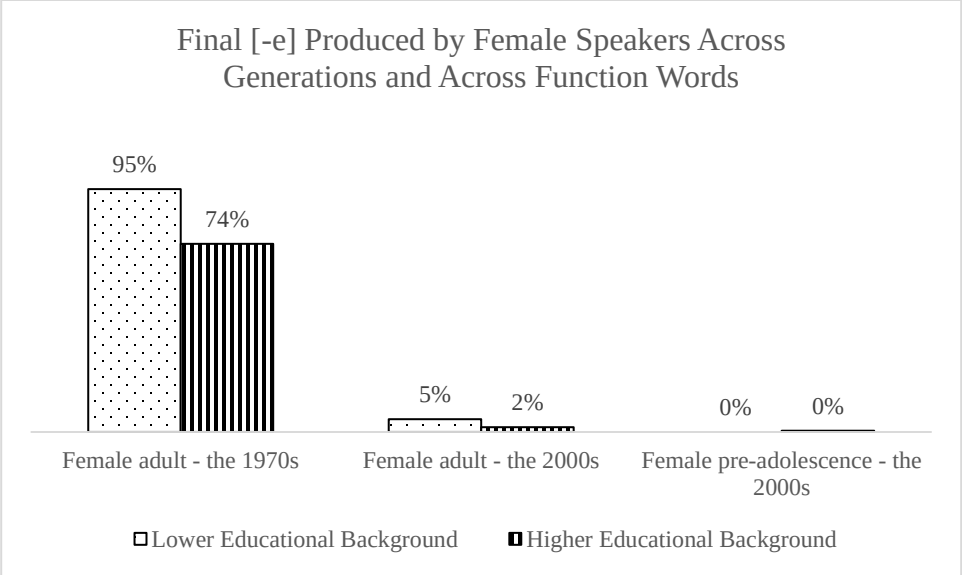


Figure 2.20: The percentages of final [-e] produced by speakers of lower educational background are indicated by the bars with dots. The bars with stripes exhibit the percentages of speakers of higher educational background.

Figure 2.20 presents the results from the 1970s female adult speech corpus, the 2000s adult female adult speech corpus, and the 2000s female pre-adolescent speech corpus. Also similar to the results from male speakers, Figure 2.20 shows different patterns of use of the variant with final [-e] between the 1970s and the 2000s results. There is a sharp pattern of decline in the occurrence of the variant with final [-e] between female adult speakers in the 1970s and female adult speakers in the 2000s. However, there is a stable pattern of distribution between female adult speakers in the 2000s and female pre-adolescent speakers in the 2000s. The percentage of the variant

with final [-e] produced by both female adult and pre-adolescent speakers in the 2000s results is less than 5%.

In terms of gender and educational background, there is an interesting interaction. In the 1970s results, male speakers, regardless of their educational backgrounds, and female speakers of lower educational background show almost the same percentages (95%). These three group of speakers are different from the female speakers of higher educational background who produced a lower percentage (74%) of the variant with final [-e]. So for women in the 1970s there is a difference with women of higher education showing less use of [e]. On the other hand the effect of educational level for males is seen in the 2000s. We return to this point in the discussion in 2.6.2.

In general, the results show that the variant with final [-e] in function words were still produced with great occurrence by JI speakers in the 1970s but the 2000s results show that its occurrence had sharply decreased. This abrupt decline patterns of use between adult speakers in the 1970s and the 2000s generation may be a sign of a change in progress that happens where unfaithful or broken language transmission occurs cross-generationally. On the other hand, the stable patterns of use between adult female speakers in the 2000s and pre-adolescent speakers in the 2000s might be an example where faithful language transmission occurs.

The next section discusses how the results from my current investigation on the variant with final [-e] in function words offer new insights into our understanding of the development of JI in relation to Betawi and SI.

2.6. Discussion

We have seen so far that variation between the variants with final [-a] and [-e] in function words in JI exhibits different proportions of the variant with final [-e] over gender, age, and educational background of the speakers (or of the parents in the case of pre-adolescent speakers), and over time between the 1970s and the 2000s. There are two major aspects of this variation discussed in this section: the historical account of both vowels, and the role of speakers' gender and educational background in relation to SI. Let us start with the historical account of these vowels in relation to three surrounding varieties: Betawi, Sundanese, and SI.

2.6.1. The historical account

The patterns of variation of final [-a] and [-e] in JI developed from the process of language contact with surrounding languages. In order to understand how these patterns of variation may contribute to our understanding of the development of JI, we need to return and observe the chronological process, starting from the emergence of rural Betawi until present-day JI, based on our discussions in Chapter One and 2.1.1.

Most scholars who have worked on Betawi agree that the final [-e] emerged in the urban areas in Jakarta, and was then influenced by the Sundanese pattern in the rural areas of Jakarta border to Sundanese speaking areas (Wallace, 1976; Ikranagara, 1980; Muhadjir, 1981; among others). These studies mentioned that the pattern of variation of final [-a] and [-e] in function words was first found among rural Betawi speakers who lived in the outskirts of Jakarta. Among these rural speakers, the final [-a] emerged as a result of contact with Sundanese, while the final [-e] is an older form of urban Betawi (Wallace 1976).

The adoption of final [-a] is not caused by direct lexical borrowings from Sundanese. Wallace (1976) mentioned that Sundanese and Malay have some cognate

forms in content words but not in function words. The function words investigated in this study are not cognates and have different lexical forms from Sundanese. Table 2.20 illustrate the examples.

Table 2.20: Examples of Malay and Sundanese function words

Malay	Sundanese	Gloss
[ja]	[sumuhun]; [lərəs][21]	yes
[ija]	[sumuhun]; [lərəs]	yes
[-ɲa]	[naʔ]	POSS/DET
[dia]	[manehnaʔ]	3SG
[adʑ͡ʑa]	[waeʔ]	just
[ada]	[ajaʔ]	exist
[apa]	[naon]	what
[gua]	[abdiʔ]; [ʔuraŋ]	1SG
[dua]	[duaʔ]	two

The final [-a] is most probably absorbed into the rural Betawi words via several stages of change. Wallace (1976:113) noted that some Malay words like [bara] 'live coal', [buta] 'blind', [dua] 'two', etc. are cognates with Sundanese words [baraʔ] 'live coal', [butaʔ] 'blind', [duaʔ] 'two', etc. Sumukti (1958) mentioned that Sundanese has glottal stop after vowels phrase-finally. Van Syoc (1959) also mentioned that the final minimal sequence in Sundanese is –VC, and C is for any consonant including the glottal stop. This Sundanese pattern of use then spread and replaced final [-e] to [aʔ] across the content words in rural Betawi. Sundanese influence affects not only the variation of [-e] ~ [-a] but also the presence of final [-h] and [-ʔ], the topic of Chapter Three.

[21] I consulted several Indonesian-Sundanese dictionaries including Munawar (2011), Umsari (2001), Toffandi (1992) and none of them listed <ya> and <iya> as entries. Surayin (1995) listed <ya> with <sumuhun; muhun> as the equivalent translation. My Sundanese consultants had difficulty finding the equivalent meaning of <ya> and <iya> in Sundanese. According to my consultants, the closest translations I can provide is <sumuhun> or <leres>, which meanings are actually equivalent more to 'right' or 'correct' rather than 'yes' as listed in table 2.20.

Besides final glottal stop from Sundanese, Wallace (1976:111-13) reported that the excrescence of final [h] also occurred in some function words among rural Betawi speakers, such as in [guah] '1SG' and [apah] 'what'. He mentioned that the origin of the glottal fricative excrescence is still unclear and it spread irregularly across function words without any conditioning factors. In rural Betawi, some function words may only occur with the glottal stop in the phrase-final position such as [adaʔ] 'exist', [duaʔ] 'two', but not with glottal fricative such as *[adah] or *[duah].[22] Some function words may only occur with glottal fricative in phrase-final position such as [-ɲah] 'DET/POSS', [diah] '3SG', [adʒ͡ʒah] 'just', [apah] 'what', [guah] '1SG', but not *[-ɲaʔ], *[diaʔ], *[adʒ͡ʒaʔ], *[apaʔ]. Some words may occur with both forms such as in [jaʔ] ~ [jah] 'yes' and [ijaʔ] ~ [ijah] 'yes'.

In JI, it appears that final [-ʔ] and [-h] in function words have generally been lost phrase-finally under SI influence. To have a better description, I provide these patterns of variation in some function words in rural Betawi, JI, and SI in the Table 2.21.

Table 2.21: Variation in rural Betawi, JI, and SI

Rural Betawi	JI	SI	Gloss
je ~ jaʔ	je ~ ja	ja	yes
ije ~ ijaʔ	ije ~ ija	ija	yes
-ɲe ~ -ɲah	-ɲe ~ -ɲa	-ɲa	DET/POSS
die ~ diah	die ~ dia	dia	3SG
adʒ͡ʒe ~ adʒ͡ʒah	adʒ͡ʒe ~ adʒ͡ʒa	sadʒ͡ʒa	just
ade ~ adaʔ	ade ~ adaʔ	ada	exist
ape ~ apah	ape ~ apa	apa	what
due ~ duaʔ	due ~ duaʔ	dua	two
gue ~ guah	gue ~ gua	saja; aku	1SG

We can see in Table 2.21 that at the early stage of its development, rural Betawi had three variants of function words: [-e] ~ [-aʔ], and [-ah]. For [-aʔ] and [-ah],

[22] Asterisk is used to indicate ungrammaticality, not a proto-form.

they follow the Sundanese pattern that does not allow open syllable in phrase-final position. JI speakers adopted the pattern [-e] ~ [-a], but leaving behind the [ʔ] and [h] segments after final [-a], except for the words [adaʔ] 'exist' and [duaʔ] 'two.' In Table 2.21 above, we can see that in terms of glottal patterns, the JI is closer to SI. Both varieties are more restricted to final [-ʔ] and [-h] in function words.

During its initial stage of cultivation, SI was mainly based on Malay as spoken around the Malay Peninsula and east-central Sumatra (MacDonald & Darjowodjojo, 1967; Lapoliwa, 1981; among others), and this variety of Malay allowed final vowels, i.e., did not require glottal stop or fricative after vowels in phrase-final position. This is also true in current SI, where glottal stop and glottal fricative are not allowed to occur after vowels in phrase-final position, unless for some lexicalized words, i.e., forms with no variation where glottal stop and glottal fricative must occur, such as [bapaʔ] 'father', [tidaʔ] 'negation', [rumah] 'house', [sudah] 'already' etc. JI speakers, who are associated with middle-higher class status (Sneddon, 2006), adopted SI forms rather than Betawi forms in function words.

The Sundanese trace still can be observed in some function words such as in [adaʔ] 'exist' and [duaʔ] 'two.' JI speakers still pronounced these words with strong glottal catch and fricative phrase-finally. It might be due to the word [dua] 'two' in Malay that cognates with Sundanese [duaʔ] 'two', and the Malay word [ada] 'exist' that phonologically similar to Sundanese word [ajaʔ] 'exist'. They are different from other function words that we discussed in Table 2.20, which have completely different lexical and phonological forms from Sundanese. For the function words that have different lexical and phonological forms from Sundanese, the rural Betawi adopted only the final glottal stop. The accretion of the final glottal stop is a remnant of their Sundanese accent. However, when rural Betawi adopted [dua] > [duaʔ], they might have absorbed this as a Sundanese borrowing, and then lexicalized this form. That is

why these type of forms are not as “easy” to receive SI influence as other function word forms that are not cognate with Sundanese, i.e., have different lexical and phonological forms, as shown in Table 2.20. This also happens in JI final vowels in content words that are generally pronounced with glottal stop phrase-finally such as [bukuʔ] ‘book’, [mukaʔ] ‘face’, etc, without having influence from SI. We turn shortly to this question.

Besides this irregularity, JI shows a regular pattern of variation of final [-e] ~ [-a] as shown in Table 2.21. As the more conservative form, the variant with final [-e] was innovated by urban Betawi speakers and has been passed down cross-generationally from the nineteenth century until the present time. It was still robustly produced in the 1970s by JI speakers, as reported by Wallace (1976). As we have seen in 2.3, this current study found that both adult and pre-adolescent speakers from the 2000s have shown a sharp decline pattern of use of the variant with final [-e] in function words. It appears that there is an increasing use of the variant with final [-a] in function words, which is the result of SI influence. These JI speakers, who are mostly the second and third generation of migrant people in Jakarta, have totally lost their Sundanese linguistic connection and are more linguistically associated with rural Betawi and Indonesian. Even rural Betawi speakers have completely lost their collective memory to Sundanese when their younger generation of speakers acquired this rural variety and considered themselves as a distinct ethnic and linguistic group separated from Sundanese.

Thus far, we have seen that the use of the variant with final [-a] in JI has increased as a result of SI influence rather than Sundanese. In the next section, I discuss the speakers’ educational background in relation to SI.

2.6.2. Relation to educational background and gender

To discuss education as a factor determining the variant choice, we should start with a brief description of the history of Indonesian standardization.[23] During the 1970s, SI, was still at the very early stage of its spread and influence through formal education, although its beginnings date to Dutch colonial times and efforts had been made throughout the years to further its spread. As discussed in Chapter One, The crucial time of the modernization of Indonesian, according to Sneddon (2003:7), is between 1966 -1998 (the *Orde Baru period,* when Indonesia was under the leadership of President Soeharto). The government viewed standardization and modernization of Indonesian as essential to support the stability of the nation. Accelerating the spread and influence of SI through formal education was seen as fundamental to the nation's political stability, an absolute necessity to support the government's economic development program.

One of the major programs of Indonesian standardization was spelling reform, as discussed in Chapter One. The improved spelling (*Ejaan Yang Disempurnakan*) was introduced in 1972. This improved spelling system was then used in formal schools and other official matters. The variant with final [-a] in this study is a product of this standardization. Thus, SI requires the choice of the variant with final [-a] over variant with final [-e] in function words, and this choice was inculcated in the schools. Thus, the amount of education is correlated with the percentage of the variant with final [-e].

The limited occurrences of the variant with final [-a] in the 1970s results, which occurred across all educational backgrounds and both genders, tells us that the influence of SI on JI speakers was limited at that time. Interestingly, the robust

[23] See Sneddon (2003) for the history of stages of Standard Indonesian planning, and Badan Pengembangan and Pembinaan Bahasa (National Language Board) website (http://badanbahasa.kemdikbud.go.id/lamanbahasa/sejarah ; retrieved on 6/3/2017) for the history of the National Language Board.

occurrences of the variant with final [-a], in the 2000s results, which appears across the educational background, genders and ages (adult and pre-adolescent), shows that the use of SI in education has exercised a broad and pervasive influence on JI. The occurrence of the variant with final [-a] which has abruptly increased within only one generation of speakers is due to the success story of SI cultivation. This case corresponds to what Sneddon (1996) suggested that the successful time of SI language planning was during President Soeharto's leadership (1966-1998), and this is clearly indicated by the detailed results from the corpora gathered heretofore.

In general, the decreasing use of the variant with final [-e] and the increasing use of the variant with final [-a] is shown across generations. If we look at them in more detail, we can observe that the educational background of speakers seems to play important roles as well. The adult speakers of lower educational background have a tendency to produce more variant with final [-e] than the adult speakers of higher educational background. It might be the case that SI, through its use in the educational system, has more influence on the adult speakers of higher educational background. The adult speakers of higher educational background choose the variant with final [-a] over the variant with final [-e].

In the 1970s, the variant with final [-e] in function words was produced robustly by male speakers from both education categories. The male speakers of lower and higher educational background produced 95% of the variant with final [-e]. Interestingly, the results from female speakers indicate a difference between education categories. The female speakers of higher educational background produced 74%, and the female speakers of lower educational background produced 95% of the variant with final [-e]. This suggests that in the 1970s, the female speakers from higher educational background had started to lead the change in progress by producing more variant with final [-a] as the SI form than the male speakers, and the female speakers

of lower educational background. It is in agreement with what discussed by Holmes (2013:167-174) that female speakers have a tendency to lead the change in progress. In our case, the change is one from the indigenous form towards the standard form. The male speakers in the 1970s seem to be more resistant to this change. They preferred to use more indigenous form than standard ones.

The comparison between the results from the 1970s with the results from the 2000s in Figures 2.13 and 2.14 shows that there is a pattern of abrupt decrease in the use of the variant with final [-e] in function words. The production of the variant with final [-e] by male speakers of higher educational background is dropped from 95% in the 1970s to 39% in the 2000s. For the male speakers of lower educational background, the percentage of the variant with final [-e] also dropped from 95% in the 1970s to 11% in the 2000s. A more extreme decline can be seen in the results from the female speakers. The production of the variant with final [-e] by female speakers of higher educational background decreased from 95% in the 1970s to 5% in the 2000s. The production of the variant with final [-e] by female speakers of lower educational background declined from 74% in the 1970s to 2% in the 2000s. This phenomenon shows that although the male speakers in the 1970s seem to be more resistant to the SI influence –including those with the higher educational background, the younger generation of speakers in the 2000s is much more strongly influenced by SI.

The occurrence of the variant with final [-e] in function words steadily decreased among pre-adolescent speakers in the 2000s. The percentage of the variant with final [-e] in function words by both female and male pre-adolescent speakers is less than 2%. This happens regardless of their parents' educational background.

To sum up, the JI adult speakers in the 1970s produced limited occurrences of final [-a] in function words. This is due to the limited influence of SI for this formal variety was still at the very early stages of its cultivation, especially the spelling

reform program in 1972, which was implemented by the Soeharto regime in 1966-1998. Despite the limited occurrence of final [-a] by JI adult speakers, we can still see that SI started to affect the more educated female speakers first. These female speakers produced less variant with final [-e] (more variant with [-a]) in the 1970s than lower educated female speakers and male speakers. The effect of SI influence can be observed clearly when the use of the variant with final [-a] continuously increases among the 2000s generation of speakers.

CHAPTER THREE

PATTERNS OF VARIATION OF WORD-FINAL [-h] AND [-ʔ]

3.0. Introduction

This chapter discusses the patterns of variation in final [-h] and final [-ʔ] in function words in Jakarta Indonesian (JI). The patterns of variation of these two segments are important in examining the development of JI. Providing a careful investigation of their complexity in terms of patterns of use allows us to achieve a better understanding of their historical development and present-day usage in relation to Betawi and Standard Indonesian (SI). The findings in this chapter are drawn from the naturalistic speech corpus (Gil et al., 2015). The corpus used in this chapter is the same as the one used in Chapter Two and described in Chapter One.

As discussed in Chapter Two, final [-h] following /a/ and final [-ʔ] following /a/, which correspond to the final vowel /a/ in SI, occurred in JI as a result of contact between Betawi and Sundanese. In this chapter, the analysis includes not only [-h] and [-ʔ] that follow vowel [a], but is also extended to [-h] and [-ʔ] that follow other vowels such as [u] and [i] in [itu] ~ [ituh] ‘that’ and [lagi] ~ [lagiʔ] ‘more.’

Before I specifically describe final [-h] and [-ʔ], I first provide a chart of the consonants in Indonesian and Betawi. For SI, the description of consonants proposed by Lapoliwa (1981) is listed in Table 3.1.

Table 3.1: Consonants in SI.[24] If the phonemes appear in a pair, the one on the left represents a voiceless consonant and the one on the right represents a voiced consonant.

	bilabial		coronal		palatal		velar		glottal
stops	p	b	t	d	t͡ɕ	d͡ʑ	k	g	
nasals		m		n		ɲ		ŋ	
fricatives			s						h
liquids				l, r					
glides		w				j			

Lapoliwa posits eighteen contrastive phonemes of Indonesian. He considers [ʔ] as an allophone of /k/. Unlike Lapoliwa, Ikranagara (1980) and Muhadjir (1981) listed /ʔ/ as an underlying phoneme in Betawi so that the phonemic inventory of consonants in Betawi include nineteen consonants as described in Table 3.2.

Table 3.2: Consonants in Betawi. If the phonemes appear in a pair, the one on the left represents a voiceless consonant and the one on the right represents a voiced consonant.

	bilabial		coronal		palatal		velar		glottal
stops	p	b	t	d	t͡ɕ	d͡ʑ	k	g	ʔ
nasals		m		n		ɲ		ŋ	
fricatives			s						h
liquids				l, r					
glides		w				j			

As opposed to Lapoliwa, Muhadjir, and Ikranagara propose that underlying /k/ should surface as [k], and underlying /ʔ/ should surface as [ʔ], i.e., [ʔ] should not be considered as the allophone of /k/. I will come back to this differing treatment of the glottal stop when we discuss this segment specifically in 3.1.2.

This chapter addresses the patterns of variation found in the naturalistic speech corpus collected by Gil et al. (2015), i.e., the 2000s corpus. As explained in Chapter

[24] [j] is orthographically written as <y>, [ŋ] is <ng>, [ɲ] is <ny>, [d͡ʑ], is <j>, and [t͡ɕ] is <c>.

One, we do not analyze the 1970s corpus in this chapter since the audio data are not available and presence or absence of final [-h] and [-ʔ] is difficult to determine. The organization of the chapter is as follows: section 3.1 elaborates on the description of [h] and [ʔ]; section 3.2 explains the methodology of the corpus study; section 3.3 reports on the results from the corpus based on the phonological conditioning; section 3.4 discusses the results based on gender; section 3.5 presents the results based on the speakers' educational background. Finally, section 3.6 is devoted to a general summary of the results in relation to the historical and present-day development of JI.

3.1. Description of word-final [-h] and [-ʔ]

Since the occurrence of [-h] and [-ʔ] in word-final position in JI is the result of a historical development that originated in Betawi, it is important to elaborate on the description of word-final [-h] and [-ʔ] based on evidence from Betawi. I also include a description from SI since the present-day use in JI is heavily influenced by this formal variety of Indonesian.

The first part of this section focuses on the description of the word-final [-h], and the second one discusses the description of the word-final [-ʔ]. The description is drawn from previous studies of SI (Lapoliwa, 1981), Betawi (Ikranagara, 1980; Muhadjir, 1981; Wallace, 1976), and the description of [h] and [ʔ] insertion is specifically following from Wallace (1976).

3.1.1. Word-final [-h]

In SI, Lapoliwa (1981) described [h] as a voiceless glottal fricative sound. He reported that [h] may occur in initial, medial, and final position. In SI, there are some words in which the word-final /h/ is considered underlying, such as /rumah/ 'house', /sudah/, 'already', and /basah/ 'wet'. In his study of SI, Lapoliwa (1981) mentioned that the

word-final /-h/ in these words is considered as a distinctive sound unit (phoneme) and therefore underlying.

In word-final position, final [-h] may be variably realized as [h] or [Ø] as in *rumah* → [rumah] ~ [ruma] 'house', *letih* → [letih] ~ [leti] 'tired', *basah* → [basah] ~ [basa] 'wet', and so forth.[25] Lapoliwa stated that Indonesian speakers generally drop final [-h], and this feature of their speech is not considered to be sub-standard.

Evidence for this can be seen in suffixation (i.e., causative/(in)transitive/noun forming suffixes) where final [-h] is optionally deleted when it is followed by consonant-initial suffixes such as in *kasih+nya* → [kasihɲa] ~ [kasiɲa] 'her/his love', *basah+kan* → [basahkan] ~ [basakan] 'make it wet.' In suffixes beginning with vowel, final [-h] is also optionally deleted, when the two vowels (in bold) are not identical, e.g., *ke+leti**h**+**a**n* → [kələt**i**h**a**n] ~ [kələt**ia**n] 'state of being tired/too tired', *kas**i**h+**a**n* → [kas**i**h**a**n] ~ [kas**ia**n] 'pitty/sorry.' In all cases mentioned here, Lapoliwa reported that final [-h] is generally deleted. Interestingly, Lapoliwa mentioned that the deletion of final [-h] never occurs when it is preceded and followed by identical vowels (in bold) such as in *kas**i**h+**i*** → [kas**i**h**i**] 'to love someone', *pe+rum**a**h+**a**n* → [pərum**a**h**a**n] 'housing complex.'

In Betawi, Ikranagara (1980) reported that [h] does not occur in word-initial position but may occur in word-medial position. In Betawi, final [-h] in word-final position is usually deleted in words which have final [-h] in SI.[26] For example, [pili] 'choose' in Betawi is realized as [pilih] ~ [pili] in SI, and [bodo] 'stupid' is realized as [bodoh] ~ [bodo] in SI. Muhadjir (1981) reported that the modern (JI) speakers

[25] Italicized forms are in Indonesian orthography.

[26] Ikranagara, as discussed by Wallace (1976), also mentioned that the loss of /h/ in urban area of Jakarta maybe because of Chinese influence. The loss of [h] is common among Chinese in Baba Malay (Shellabear 1913) spoken in Malaysia. Interestingly, the rural speakers of Betawi still maintained [h] where Chinese population was still very low in the rural areas of Jakarta. In Cirebon, a city on the north coast of Java island, the local variety of Javanese also lost [h] which is probably due to a high population of Chinese in this area (Wallace 1976).

produced these words with final [-h] quite frequently, while conventional (traditional) Betawi speakers frequently produced these words without final [-h]. My current study shows that generally, in words which have final [-h] in SI, speakers of JI maintain the occurrence of final [-h] in phrase-final position, such as [udah] 'already' ([sudah] in SI), but drop the final [-h] phrase-medially so that it becomes [uda]. An utterance from Gil et al.'s (2015) corpus that shows this pattern is exemplified in (1).

(1)	begitu	dikejar	udah	nggak	ada
	bəgitu	dikəd͡ʑar	**uda**	ŋga	adaʔ
	like.that	DI[27]-chase	already	no	exist

'when they chased them, they're gone.'
[ID: 4735441605550411O4][28]

The final [-h] in [udah] can be deleted as shown in [uda] in the utterance above. Lapoliwa, Ikranagara, and Muhadjir, however, did not report specifically if the deletion of final [h] in SI and Betawi happened phrase-medially or phrase-finally. My observation shows that the phrasal level is a very important conditioning factor that may determine the patterns of variation in the actual speech produced by native speakers. For further details, I will come back to this issue in 4.3.

In suffixation, word-final [-h] in Betawi behaves similarly to [-h] in SI when it is followed by consonant-initial suffixes. Ikranagara (1980) mentioned that although deletion is optional, [-h] is more often realized than deleted before suffixes that begin with consonant such as in *marah+nya* → [marahɲa] ~ [maraɲa] 'her/his anger.' Likewise, although optional, word-final [-h] is also generally deleted when it is preceded and followed by different vowels, such as in *mar**a**h+**i**n* → [mar**a**h**i**n] ~ [mar**ai**n] 'get angry at.' Interestingly, word-final [-h] in Betawi behaves differently from SI between like vowels. Word-final [-h] can be realized or deleted when the

[27] DI- is passive voice prefix.
[28] This is a unique utterance ID taken from Gil et al.'s (2015) corpus.

surrounding vowels are identical. Ikranagara reported that /mar**a**h+**a**n/ may be realized as [mar**a**h**a**n] ~ [mar**aa**n] 'get mad one another', even though [mar**a**h**a**n] is more common.

I now turn to the description of final [-h] insertion in JI. Wallace (1976) found that the number of words that have this insertion is very restricted but their frequency is high in terms of occurrence in the corpus. Some of the words he mentioned include *(i)ni* 'this', *(i)tu* 'that', *lu* '2SG',[29] *sini* 'here', *situ* 'there', *(be)gini* 'like this', and *(be)gitu* 'like that'. We should note that all of these words are function words which have the tendency to have a higher frequency than other words in its usage. The word forms and their variations of these words are *ini* → [(i)ni] ~ [(i)nih], *itu* → [(i)tu] ~ [(i)tuh], *lu* → [lu] ~ [luh], *sini* → [sini] ~ [sinih], *situ* → [situ] ~ [situh], *begini* → [(bə)gini] ~ [(bə)ginih], and *begitu* → [(bə)gitu] ~ [(bə)gituh].

As discussed earlier in Chapter Two, the majority of works addressing the historical development of Betawi have not provided any comprehensive understanding of the emergence of final [-h]. Nevertheless, Wallace (1976) proposed some possibilities for the origin of final [-h] in Betawi. He suggested that final [-h] insertion geographically started in the rural areas around Jakarta, bordering Sundanese speaking areas, but that final [-h] did not come from Sundanese. As mentioned earlier in Chapter Two Section 2.6.1, Betawi in the rural areas of Jakarta followed the Sundanese pattern of word-final minimum syllable -VC#, where the slot of C may be filled with any consonant. In Betawi, if a word ends with a vowel -V#, it generally becomes -Vʔ#. However, the final open syllable in some function words is not closed with [ʔ], but with [h]. Examples of common words in Betawi that are not closed with [ʔ] but rather [h] are presented in Table 3.3.

[29] 2SG: second singular person.

Table 3.3: Examples of Betawi and Sundanese function words

Betawi	Restricted forms	Sundanese	Gloss
[(bə)ginih]	*[(bə)giniʔ]	[kiəuʔ]	like this
[ituh]	*[ituʔ]	[ɛtaʔ]	that
[inih]	*[iniʔ]	[iəuʔ]	itu
[lagih]	*[lagiʔ]	[dəuiʔ]	more
[sinih]	*[siniʔ]	[di diəuʔ]	here
[situh]	*[situʔ]	[di dituʔ]	there

The first column in Table 3.3 presents some Betawi function words and the second column exhibits Sundanese equivalent function words. As we see in this table, Betawi and Sundanese have different function words, and the rural Betawi speakers did not adopt Sundanese forms. Rather, Wallace suggests that they added final [-h] to the Malay forms to satisfy the minimum syllable –VC# requirement–i.e., to avoid unpronounceable phrase-final vowels (Wallace 1976:111-13). They are realized in these forms: [(bə)ginih] ‘like this’, [ituh] ‘that’, [inih] ‘this’, [lagih] ‘more’, [sinih] ‘here’, and [situh] ‘there.’ This, however, raises a question why these function words were not closed with a glottal stop so that it would result *[(bə)giniʔ] ‘like this’, *[ituʔ] ‘that’, and so forth.

Wallace (1976:149-51) suggested that some Malay pronouns or deictics that are semantically similar, such as [saja(h)] ‘1SG’, high-frequency verbs, such as [pə(r)gi(h)] ‘go’, or pragmatic particle, such as [gih] ‘particle’, might be responsible for this insertion. However, this does not explain where final [-h] in [saja(h)] and [pə(r)gi(h)] came from. Another suggestion he offered is that final [-h] emerged in the deictics of handing and offering, such as [nih] ‘this/here’ and [tuh] ‘that/there’, and the pattern of insertion is absorbed into pronouns [ini(h)] ‘this’, and [itu(h)] ‘that’, and then spread to other function words.

My current investigation does not aim to solve the historical account of final [-h] insertion, but rather uses some function words he mentioned here as the starting

point of my analysis. Let us now turn to the description of the glottal stop in the next section.

3.1.2. Word-final [-ʔ]

In his study of SI, Lapoliwa (1981), suggested that the distribution of [ʔ] is phonologically predictable in native Indonesian words. It occurs only in word-final position, such as in *tidak* → [tidaʔ] 'no' and *bapak* → [bapaʔ] 'father'.[30] In suffixed form, final [-ʔ] is also realized such as in *se+tidak+nya* → [sətidaʔɲa] 'at least', and *ke+bapak+an* → [kəbapaʔan] 'fatherly.' Because of its phonological predictability, Lapoliwa considered [ʔ] as an allophone of /k/. [k] and [ʔ] can be contrastive word-finally, but only in borrowings. For example, *pak* [pak] 'package' (English) and *Pak* [paʔ] 'father/sir' (native Indonesian), and *bak* [bak] 'basin/tub' (Dutch) and *bak* [baʔ] 'like' (native Indonesian). However, as a result of borrowing, the final [k] and [-ʔ] are at least marginally contrastive. On the other hand, [k] occurs in word-initial, medial, and final position, such as in [kamu] '2SG', [aku] '1SG', and [botak] 'bald'. We should note here that in SI, the final [ʔ] is orthographically written in <k> as decided by The Spelling Committee of the Institute of Language and Literature (1966); Johns (1975); among others, as cited by Lapoliwa (1981). This is applied even for cases where <k> is arguably /ʔ/, as discussed in the next paragraph.

In contrast with Lapoliwa, Ikranagara (1980) and Muhadjir (1981) listed /ʔ/ as an underlying phoneme in Betawi. In negatives, certain particles and kinship terms, the final glottal stop should be listed in the lexicon. These words include *kagak* /kagaʔ/ 'no', *nggak* /ŋgaʔ/ 'no', *kok* /koʔ/ 'particle; how.come', *kek* /keʔ/ 'particle', *Pak* /paʔ/ 'father/sir', *Mak* /maʔ/ 'mother', *Nyak* /ɲaʔ/ 'mother', and so forth. Ikranagara (1981:116) supported that final glottal stop is actually a remnant form of Proto-

[30] [ʔ] may occur word-medially in Arabic borrowings as in [jumʔat] 'Friday' and [saʔat] 'moment'.

Austronesian which was already lexicalized in the Betawi lexicon. In any case, it is not only an allophone of /k/ as it is at least marginally contrastive.

I will now elaborate on final glottal stop insertion based on Wallace's (1976) account. Glottal stop [ʔ] may be realized in word-final position in most content words, and some function words that end with vowels. As discussed in Chapter Two (section 2.4.1), the emergence of final glottal stop insertion in Betawi is due to the Sundanese influence on the speech of rural areas of Jakarta. Two major descriptions of Sundanese, Sumukti (1958) and Van Soyc (1959), agree that all words ending in a vowel in Sundanese are obligatorily closed with a non-contrastive glottal stop –Vʔ#. Contact with Sundanese had caused rural Betawi speakers to adopt this Sundanese pattern in some Malay words, chiefly content words, such as *mandi* [mandiʔ] 'to bathe', *nasi* [nasiʔ] 'rice', *dulu* [duluʔ] 'before', and some function words as in *lagi* [lagiʔ] 'continuous' and *juga* [jugaʔ] 'also.'

Based on his corpus study, Wallace reported that Betawi speakers, even in urban areas generally used the -Vʔ pattern, except the function words that optionally add [-h], listed in Table 3.3. This might indicate that Sundanese influence had affected not only rural but also urban areas. Interestingly, non-Betawi, especially low-status male speakers, had nearly the identical pattern of final glottal insertion as Betawi speakers. These non-Betawi speakers were mostly those of low socio-economic background, born and raised in Jakarta, i.e., the first generation of JI speakers, and who lived in areas populated mainly by Betawi speakers. Another group of speakers, whom he called innovative speakers, produced a greater amount of variation between final [Ø] ~ [-ʔ] than the conservative speakers. For example, [pake] ~ [pakeʔ] 'use', [rəbo] ~ [rəboʔ] 'Wednesday', and [tadi] ~ [tadiʔ] 'earlier'. According to Wallace, this group of speakers belongs to the first generation of immigrants, i.e., the first generation of JI speakers whose parents were not born and did not grow up in Jakarta,

i.e., non-Betawi; they are mostly female speakers, of all socio-economic groups; their neighborhoods were not heavily populated by Betawi speakers; or they were speakers of middle-upper socio-economic background.

As we have seen so far, there is a prescriptive view of underlying /-h/ and /-ʔ/ in SI but it is not at all clear whether word forms in SI represented with final /-h/ and /-ʔ/ have /-h/ ~ /-ʔ/ in JI. There is a further complication with orthography since in SI orthography <h> and <k> are included in these forms. We see in the next section, extensive variation between [Ø] ~ [-h] ~ [-ʔ] and so we need to consider whether in these forms there is variable/optional deletion or variable/optional insertion. In examining the highest frequency function words that end in [Ø] ~ [-h] ~ [-ʔ], we will see that there is not a homogeneous account.

The rest of this chapter is devoted to a careful study of final [Ø], [-h] and [-ʔ] variation in function words among the present-day JI speakers. This systematic study should allow us to better understand how the patterns of variation can be used to identify a linguistic change in progress.

3.2. The methodology of the corpus study

As we have seen so far, the patterns of use of final [-h] and [-ʔ] are phonologically and socio-historically complex phenomena. Wallace (1976: 127) stated that even with relatively extensive speech data, it is extremely challenging to identify the social correlation between the patterns of variation. Aside from Wallace's study, the majority of previous works relied on impressionistic investigations and did not yield an insightful understanding of these patterns of variation used in the social context. For that reason, I aim to provide a comprehensive and careful study of the patterns of variation of [-h] and [-ʔ] in relation to the speakers' social background, using Gil et al.'s (2015) naturalistic speech corpus.

This section reports on the choice of words, phrasing, and the coding method used. As previously mentioned, I focus this study only on function words that have the potential to show patterns of variation of final [-h] and [-ʔ]. The results in Chapter Two suggest that the function words often work differently from content words, consistent with Bell, Breiner, Gregory, Girand, and Jurafsky (2009: 98) who point out that function words are of higher frequency in conversation than content words. Specifically for JI, Gil et al.'s (2015) corpus shows that the function words are indeed produced in higher frequency than content words, as described earlier in Chapter Two. Consequently, if we focus on function words, our chance to discover patterns of variation should be higher.

To understand these patterns of variation, first, we need to determine what function words should be included in this study. For this purpose, there is a total of fifteen function words examined. They were chosen because they have a much higher overall frequency than other function words in Gil et al.'s corpus (2015), and these are the words where the patterns of variation are more clearly evinced. The details of their frequency and rank in the corpus are shown in Table 3.4.[31]

[31] Also, see Table 2.5 in Chapter Two for the top fifty most produced words in the 2000s corpus.

Table 3.4: Function words that have final [-ʔ], [-h], or [Ø]

Rank	Word forms	Gloss	Occurrences
1	*nya*	DET/POSS	10,267
2	*ya*	yes	8,191
3	*iya*	yes	8,153
4	*nggak*	not	5,172
5	*gitu*	like.that	4,900
8	*itu*	that	4,374
12	*ada*	exist	3,902
13	*saya*	1SG	3,890
14	*udah*	already	3,573
16	*tu*	that	2,908
20	*ini*	this	2,472
25	*juga*	also	2,154
31	*lagi*	more	1,641
34	*ni*	this	1,391
39	*masih*	still	1,100
42	*jadi*	become	1,007
43	*tapi*	but	1,001

These function words are all those ending in [-ʔ], [-h], or [Ø] among the top fifty most frequently produced words in the 2000s corpus. The first column shows their rank in the corpus based on the occurrences shown in the fourth column. To see how the variations of these function words are realized, let us now observe Table 3.5.

Table 3.5: Function words and their variants

	Word forms	Gloss	Variation
(1)	*nya*	DET/POSS	[-ɲa] ~ [-ɲah]
(2)	*iya*	yes	[ija] ~ [ijah] ~ [ijaʔ]
(3)	*ya*	yes	[ja] ~ [jah] ~ [jaʔ]
(4a)	*nggak*	not	[ŋga] ~ [ŋgaʔ]
(4b)	*gak*	not	[ga] ~ [gaʔ]
(5a)	*begitu*	like.that	[bəgitu] ~ [bəgituh]
(5b)	*gitu*	like.that	[gitu] ~ [gituh]
(6a)	*itu*	that	[itu] ~ [ituh]
(6b)	*tu*	that	[tu] ~ [tuh]
(7)	*ada*	exist	[ada] ~ [adaʔ]
(8)	*saya*	1SG	[saja] ~ [sajah]
(9a)	*udah*	already	[uda] ~ [udah]
(9b)	*dah*	already	[da] ~ [dah]
(10a)	*ini*	this	[ini] ~ [inih]
(10b)	*ni*	this	[ni] ~ [nih]
(11)	*juga*	also	[d͡ʑuga] ~ [d͡ʑugaʔ]
(12)	*lagi*	more	[lagi] ~ [lagih] ~ [lagiʔ]
(13)	*masih*	still	[masi] ~ [masih]
(14)	*jadi*	so	[d͡ʑadi] ~ [d͡ʑadiʔ]
(15)	*tapi*	but	[tapi] ~ [tapih]

The words in the second column in Table 3.5 are the function words and their truncated forms written in Indonesian orthography. The orthography of full forms (4a, 5a, 6a, 9a, 10a, and 2) and their truncated forms (4b, 5b, 6b, 9b, 10b, and 3) are all listed in Stevens & Schmidgall-Tellings Indonesian-English dictionary (2014). I provide the gloss for each word in the third column. The forms of variation are shown in the fourth column. In some cases, the variation is [-ʔ] ~ [-h] ~ [Ø], some [-ʔ] ~ [Ø], some [-h] ~ [Ø].

As mentioned in 2.6.1, the previous studies proposed that the forms with final [-ʔ] occurred in rural Betawi as the result of contact with Sundanese. Meanwhile, the forms with final [-h] were probably used to fulfill the coda position in the minimum syllable –VC# requirement. The final [Ø] form is likely due to SI influence where final [-h] and [-ʔ] do not occur for the words listed. Some of these words are orthographically written with the final <-k> (to indicate [-ʔ]) or <-h> as in *nggak* (SI

tidak) ‘not’ *udah* (SI *sudah*) ‘already’, and *masih* ‘still’. In most cases, final [-h] and [-ʔ] in these words are obligatorily present in SI.

I should note here that the words *-nya, ya*, *iya*, and *ada*, may also be realized as [ɲe], [je], [ije], and [ade] respectively, and their patterns of variation of final vowel [-a] ~ [-e] were already analyzed in Chapter Two. Since the historical development of final vowel [e] is different from [-h] and [-ʔ], and to avoid more complexity in data analysis and presentation, I treat them separately. Here, I compare the patterns of use of [-aØ], [-ah] or [-aʔ] in the words *-nya, ya*, *iya*, and *ada.*

I should also mention here that the word *iya* ‘yes’ in (10) in Table 3.5 does not occur in the same syntactic position as the word *ya* ‘yes’ (11) as question tag only *ya* occurs, not *iya*. An example in (2) below illustrates this restriction:

(2) kamu Budi, ya?
2SG Budi yes
you are Budi, aren’t you?

*kamu Budi, iya?
2SG Budi, yes
you are Budi, aren’t you?

For the purpose of analysis, *iya* and *ya* are considered to be two different forms. *ya* as a question tag is coded separately, while *ya* which has the same syntactic position as *iya* is coded together with *iya*. In Table 3.5, *ya* in (11) is for the one in the question tag position, and *iya* in (10) in Table 3.5 is for *iya* and *ya* (combined together) in the other positions.

In contrast with *iya* and *ya*, the words *begitu/gitu* ‘like that’, *itu/tu* ‘that’, and *ini/ni* ‘this’ do not have any restriction on their syntactic distribution. To the best of my knowledge, the full form and truncated form of these words may appear in the same syntactic position. For the purpose of my analysis, the full and truncated forms

(excluding *iya* and *ya*) in Tables 3.4 and 3.5 are classified as the same item as the full form words, and I combine them in presenting the results. For example, the word *gitu* 'like that' (5b) is analyzed in the same category as the word *begitu* 'like that' (5a). Henceforth, I will only use the full forms *begitu*, *itu*, and *ini* for the purpose of the results presented in section 3.2.2.

There is a stylistic difference between the full forms and the truncated forms with these words. In terms of formality, the truncated forms are used in very informal settings. All the full forms listed in Tables 3.4 and 3.5 can be used either in formal or informal settings. In particular, the word *saya* '1SG' in Table 3.5 is commonly used in formal settings, but it can be also used in informal settings when a speaker feels that her/his interlocutor is a person of status.

All the word forms under investigation in Tables 3.5 occur both in phrase-medial and phrase-final position. One clear result in the present study is that the occurrence of the variant is conditioned by its position in the phrase. Based on syntactic and phrasal coding, the function words that occur in the middle of a phrase are coded as phrase-medial, and the ones that occur in the phrase-final position are marked as phrase-final. Not included are unfinished utterances that are interrupted because of pragmatic or non-linguistic factors, such as hesitation, interruption from another speaker, unfinished utterance followed by filler, etc. As illustrations, let us consider some examples from the corpus. They are utterances with function words in which final [-h] and/or [-ʔ] may potentially occur in phrase-medial and phrase-final position.

In (3), the word *-nya* 'DET/POSS' is realized as [ɲa] in phrase-medial position, while the word *nggak* 'not' is realized as [ŋgaʔ] phrase-finally.

(3) e, backgroundnya keliatan nggak?
e bɛgrɔun**ɲa** kəliatan **ŋgaʔ**
EXCL background-DET/POSS KE-see-AN not
'hey, can you see the background or not?'
[ID: 980347112951120405]

Let us now see an example of the word *nggak* in word-medial position in (4).

(4) nggak keliatan.
ŋga kəliatan
not KE-see-AN
'I can't see it.'
[ID: 109099113019120405]

In (4), the word *nggak* is realized as [ŋga]. Unlike in (3), where glottal stop occurs phrase-finally, no final glottal occurs in the phrase-medial position in (4). The example in (5) below shows the occurrence of *-nya* in phrase-final position.

(5) tuh, di bawahnya
tuh di bawah**ɲah**
that LOC under-DET/POSS
'there, under it.'
[ID: 390250114345260402]

The word *-nya* in (5) is realized as [-ɲah] in phrase-final position. This is different from *-nya* in (3) that is realized as [-ɲa] in phrase-medial position. Let us now observe another example for the words *masih* 'still' and *ini* 'this.'

(6) masih diem aja ini.
masi diəm adʑ͡a **inih**
still silent just this
'you still keep silent.'
[ID: 334902094523120405]

In the example above, *masih* is realized as [masi] in phrase-medial position. It is

followed immediately by the word *diem* ‘silent’. Interestingly, the word *ini* is realized as [inih] in the phrase-final position —i.e., not followed by any other word. Additionally, *masih* can also be realized as [masih] in phrase-final position as exemplified in (7).

(7) eh, masih.
ʔɛh **masih**
hey still
‘hey, there’s still one.’
[ID: 903083125159160903]

In phrase-medial position, *ini* may be realized as [ini], as shown in (8).

(8) ini jerapah.
ʔini d͡ʑərapah
this giraffe
‘this is a giraffe.’
[ID: 392173050300010199]

As presented in the examples, we have seen that *masih* in (7) and *ini* in (8) are realized differently from *masih* and *ini* in (6). This shows us that phrasal-information is very important in the analysis, since it may determine the occurrence of final [-h] and [-ʔ] in actual speech production.

Besides phrasal-information, another important factor that may condition the occurrence of the final glottal segments is speaker background. All the speakers involved in the corpus examination in this chapter are the same as those already observed in Chapter Two. There are five female adult speakers of higher educational background; five female adult speakers of lower educational background; five male adult speakers of higher educational background; five male speakers of lower educational background; two female pre-adolescent speakers whose parents are of upper educational background; three female pre-adolescent speakers whose parents are of lower educational background. I do not include male pre-adolescent speakers in this

study, as their production of the function words listed in Table 3.5 is very limited.

Final [-h] and [-ʔ] occurrences in the corpus are coded by two native speakers of JI. The first one is a trained coder who worked on Gil et al.'s (2015) project, as described in Chapter Two. The second coder is me (also a trained coder). To achieve objectivity, I searched the function words being investigated in the corpus, listened to their audio files, and re-coded them without seeing the transcription provided by the first coder. In almost all cases, the transcription provided by the first coder matches the one recoded by the second coder.

The next sections present the results of patterns of variation produced in the corpus. The first part is the overall results, presented in 3.3. After that, the results are reported based on speakers' gender in 3.4. The results in which speakers' gender cross-cut their educational background are then presented in 3.5.1, 3.5.2, and 3.5.3. The results from pre-adolescent speakers are discussed in 3.5.4, and finally, the summary of the overall results are discussed in 3.6. First, let us now observe the overall results in 3.3.

3.3. Overall results from corpus - phonological conditioning

As mentioned above, the patterns of variation observed in this study are final [-ʔ], [-h], and [Ø] that occur in both phrase-medial and phrase-final position. As explained in the methodology in 3.2, there is a total of twenty adult speakers observed in this study. First, the results presented here are from speech produced by these twenty speakers without considering their gender and educational background. This allows us to consider first if there is any linguistic conditioning that determines the realization of final [-h] and [-ʔ], and the conditioning might apply to all speakers regardless of their social categories. The general results are presented in Tables 3.6 and 3.7.

Table 3.6: Final [-ʔ], [-h], and [Ø] in phrase-medial position

Phrase-medial							
Word forms	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
nya	0	4	1305	1309	0%	0.3%	99.7%
tapi	0	1	310	311	0%	0.3%	99.7%
saya	0	3	340	343	0%	1%	99%
begitu (gitu)	0	8	496	504	0%	2%	98%
ya (question tag)	5	13	546	564	1%	2%	97%
ini (ni)	0	58	792	850	0%	7%	93%
itu (tu)	0	93	1078	1171	0%	8%	92%
iya (ya)	42	4	484	530	8%	1%	91%
lagi	32	2	350	384	8%	1%	91%
ada	65	0	643	708	9%	0%	91%
jadi	28	0	258	286	10%	0%	90%
masih	0	28	224	252	0%	11%	89%
udah	0	119	809	928	0%	13%	87%
juga	84	0	282	366	23%	0%	77%
nggak	476	0	838	1314	36%	0%	64%

Table 3.7: Final [-ʔ], [-h], and [Ø] in phrase-final position

Phrase-final							
Word forms*	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
lagi	24	18	100	142	17%	13%	70%
nya	0	113	247	360	0%	31%	69%
iya (ya)	101	34	226	361	28%	9%	63%
jadi	10	0	17	27	37%	0%	63%
saya	0	11	19	30	0%	37%	63%
*ya (*question tag)	139	174	511	824	17%	21%	62%
bəgitu (gitu)	0	221	308	529	0%	42%	58%
itu (tu)	0	265	198	463	0%	57%	43%
ini (ni)	0	191	146	337	0%	57%	43%
udah	0	103	29	132	0%	78%	22%
masih	0	10	2	12	0%	83%	17%
ada	112	0	14	126	89%	0%	11%
juga	107	0	11	118	91%	0%	9%
nggak	221	0	1	222	99.50%	0%	0.50%

*the word /tapi/ is not included since it does not occur in phrase-final position.

Table 3.6 presents the distribution of fifteen function words in phrase-medial position, and Table 3.7 presents the distribution of these function words in phrase-final position. In each table, the first column shows the word forms which are written in Indonesian orthography. The occurrences of [-h], [-ʔ], and [Ø] and their total production are exhibited in the second, third, fourth, and fifth columns respectively, and their percentages are displayed in the sixth, seventh, and eighth columns, respectively.

Let us now focus on the last column of all rows in Table 3.6 (highlighted with bold lines), where we can see the percentage of final [Ø], as the SI influenced form, produced phrase-medially. We see that the percentage of final [Ø] is quite high in phrase-medial position. It varies between 64 % and 99%. For all but four forms (*masih*, *udah*, *juga*, and *nggak*), the percentage is above 90%. We return in a moment

to the forms below 90%. It suggests that the pattern is quite systematic in phrase-medial position. In short, we found limited variation when these function words are produced phrase-medially.

Interestingly, certain words in Table 3.7 show more variation in phrase-final position. The results show that the percentages of final [Ø] in words *lagi, nya, iya (ya), jadi, saya, ya* (question tag), *begitu, itu,* and *ini,* vary widely from 43% to 70% across these nine function words (highlighted in grey color) when they are uttered phrase-finally. The percentages of final [Ø] in words *udah, masih, ada, juga,* and *nggak* are less than 25%. Final [-h] in words *udah* and *masih* are 78% and 83% respectively, while final [-ʔ] in *ada, juga,* and *nggak* are 89%, 91%, and 99.5% respectively. This suggests that final [-h] and [-ʔ] in these words might be underlying and shows very limited patterns of variation in phrase-final position. At any rate, they pattern differently from other forms and are not useful indicators of non-linguistic factors influencing variation. Table 3.8 below displays a summary of the variations observed.

Table 3.8: Word forms and the conditioning factors

Word forms	Conditioning factors	
	Phrase-medial	Phrase-final
ini (ni), nya, itu (tu), begitu (gitu), iya (ya), jadi, saya, ya (question tag), lagi	• Less observed variation • [Ø] ≥ 90%	• More observed variation • [Ø] is between 43% and 70%
ada, udah, masih, juga, nggak	• [Ø] is between 64% and 91%	• Less observed variation • [Ø] ≤ 22%

The regularities where less variation is found, as summarized in Table 3.8, seem to be constrained by linguistic conditionings at the phrasal level, as discussed in 3.2. Interestingly, the grey area, where greater variation is observed, does not seem to

be conditioned by linguistic factors, but rather by social or contextual factors, as discussed immediately in the following.

These phenomena are in accordance with what Meyerhoff (2011) pointed out that alternations conditioned by linguistic factors tend to be predictable and regular. A widely-known example of linguistic conditioning is the phonological alternation in English, in which the phoneme /t/ may be realized in four different allophones. Depending on their phonetic environment, phoneme /t/ has allophones of [t], [t^h], [ʔ], and [ɾ] as in <stop> [stɑp], <top> [t^hɑp], <little> [lɪʔl̩] <kitten> [kɪʔn̩], as exemplified in Dawson and Phelan (2016). Meyerhoff (2011:10) also mentioned that alternations triggered by non-linguistic factors, such as social or contextual factors, are generally probabilistic and not categorical. She provided an example, in which a speaker of Bequian English may utter the word <hear> interchangeably between [heə] and [hier] that can be conditioned by non-linguistic factors.

In this study, it seems that the more systematic patterns where less variation observed in Table 3.8 are determined by a linguistic factor, namely phrasal conditioning since their occurrences are quite consistent. On the other hand, the more observed patterns of variation in the grey area are not determined by phrasal conditioning. To give a clear sense, Figure 3.1 exhibits the percentages of final [-ʔ], [-h], and [Ø] in words *ini (ni), nya, itu (tu), begitu (gitu), iya (ya), jadi, saya, ya* (question tag), and *lagi* in phrase-final position where more variation observed.

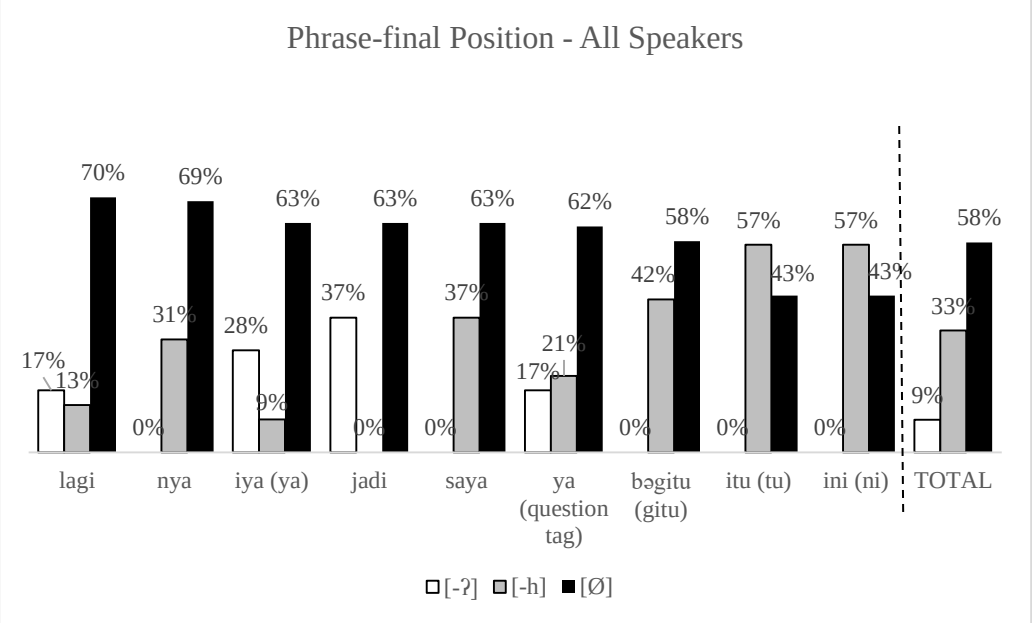


Figure 3.1: Percentages of the variants with final [-ʔ] ~ [-h] ~ [Ø] produced by all speakers. The white bars present the percentages of variant with final [-ʔ], the grey bars exhibit the percentages of variant with final [-h], and the black bars display the percentages of variant with final [Ø].

Figure 3.1 shows that the total percentage of final [Ø] are higher than final [-ʔ] and [-h]. Almost in all words, the percentages of final [Ø] are higher than final [-ʔ] and [-h], except for *itu (tu)* and *ini (ni)*. The zero percentages show that final [-ʔ] and [-h] are in fact restricted in certain words. Final [-ʔ] may not occur in the words *nya, saya, begitu (gitu), itu (tu),* and *ini (ni),* while final [-h] may not occur in the word *jadi.* In some words, such as *lagi, iya (ya),* and *ya* (question tag), final [-ʔ] may occur in variation with final [-h]. These patterns are to some degree specific to each form and part of each word's history. Most important for us is the percentage of [-h] and/or [-ʔ] as compared to the percentage of [Ø]. It should be noted here that final [Ø] may occur in all nine function words investigated here.

Of particular interest is the observed variation for these function words in phrase-final position where a lot of variation is observed. The main question now is what conditions the observed patterns of variation found in Figure 3.1. The next step

in our analysis is to identify what social factor that may trigger the variation observed in Figure 3.1. Taking patterns of use of final [Ø] as influenced by the standard variant, I investigate the degree to which speakers' gender category and their educational level determine the observed patterns of variation. The results are presented in the next sections.

3.4. Results of the corpus - gender

Previous studies in the Western communities report that female speakers use more standard forms than male speakers, as discussed in Trudgill (1983), Meyerhoff (2011), Holmes (2013), among others. Based on this consideration, the hypothesis in this section is that JI female speakers use the variant with final [Ø] more than JI male speakers. To test this hypothesis, we need to first look at the data from our twenty speakers according to gender to examine if the results show different patterns of use between the two groups of speakers. As discussed above, there are ten adult male speakers and ten adult female speakers. The description of the results is focused on the pattern of use of the variant with final [Ø] in the nine function words in phrase-final position. The results from male and female speakers are presented in Table 3.9.

Table 3.9: Function words in phrase-final position by male and female speakers

Phrase-final by male speakers							
Word forms	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
lagi	14	13	31	58	24%	22%	53%
nya	0	78	84	162	0%	48%	52%
iya (ya)	67	17	98	182	37%	9%	54%
jadi	6	0	4	10	60%	0%	40%
saya	0	4	12	16	0%	25%	75%
ya (question tag)	106	110	224	440	24%	25%	51%
begitu (gitu)	0	132	86	218	0%	61%	39%
itu (tu)	0	179	65	244	0%	73%	27%
ini (ni)	0	143	62	205	0%	70%	30%
TOTAL	**193**	**672**	**654**	**1519**	**13%**	**44%**	**43%**
Phrase-final by female speakers							
Word forms	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
lagi	10	5	69	84	12%	6%	82%
nya	0	35	163	198	0%	18%	82%
iya (ya)	34	17	128	179	19%	9%	72%
jadi	4	0	13	17	24%	0%	76%
saya	0	7	7	14	0%	50%	50%
ya (question tag)	33	64	287	384	9%	17%	75%
begitu	0	89	222	311	0%	29%	71%
itu (tu)	0	86	133	219	0%	39%	61%
ini (ni)	0	48	84	132	0%	36%	64%
TOTAL	**81**	**344**	**1099**	**1524**	**5%**	**23%**	**72%**

The total results in Table 3.9 show that the adult female speakers produced a higher percentage (72%) of final [Ø] than the adult male speakers (43%). The percentage of final [Ø] produced by the female speakers range from 50% to 82%, while the percentage of final [Ø] produced by the male speakers are between 27% and 75%, with only *saya* at 75%.

For each item, we see the difference as well as the total difference. For example, the female speakers produced final [Ø] in the words *itu (tu)* and *ini (ni)* 61%

and 64% respectively, while the male speakers produced the words *itu (tu)* and *ini (ni)* 27% and 30% respectively. The percentage of final [Ø] produced by female speakers are always higher than those produced by male speakers in almost all lexical items, except for *saya*. Since the difference of final [-h] and/or [-ʔ] vary by lexical item in a complex way, that is beyond the scope of our investigation. In this study, we use the percentage of final [Ø] as the indicator of SI influence shown in each social category of speakers.

Let us now examine a comparison of final [Ø] by both male and female speakers in Figure 3.2.

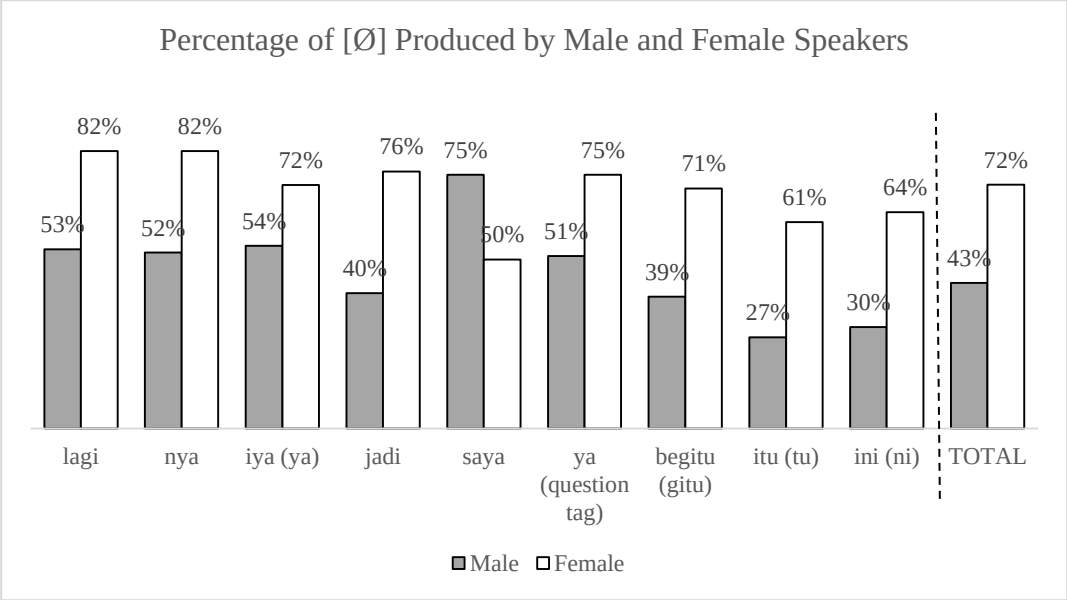


Figure 3.2: The white bars present the percentages of variant produced by female speakers and the grey bars exhibit the percentages of variant produced by male speakers.

The proposed hypothesis is supported by the results, where female speakers produced higher percentages of final [Ø] than male speakers almost in all word forms, except for the word *saya.* Interestingly, the results from male speakers show greater patterns of variation than the results from female speakers. In particular, the

percentage of final [Ø] in the word *saya* shows very different results from the other function words. The robust result of final [Ø] in the word *saya* might be affected by pragmatic factors. As mentioned in the description in 3.1, the word *saya* is mostly used in formal settings, but can also be used in informal settings when a speaker feels that her/his interlocutor is of high status. Although this case is pragmatically interesting, henceforward, I exclude *saya* from the total calculation and analysis to avoid statistical bias.

At this stage, although we can see different results based on speakers' gender, we have not yet found the cause of greater variation found among male speakers. It appears that comparing the patterns of use of final [Ø] in the function words in phrase-final position between male and female speakers alone does not account for the whole patterns of variation. Given these considerations, we need to seek another possible social factor that may trigger the patterns of variation, namely education, which is discussed in the following section.

3.5. Results of the corpus - education

In particular, since the final [Ø] in these function words is an SI influenced form and SI is inculcated in formal education, it is important to correlate the patterns of variation we observed so far with educational factors. The hypothesis is that the variant with final [Ø] is more frequently chosen by speakers of higher educational background than by speakers of lower educational background.

As noted in Chapter One, speakers are not classified based on their socio-economic background, as it is not uncommon to find people of higher economic level but lower educational background, speaking with strong Betawi features. For this reason, education is chosen as the social factor.

The categories used for lower and upper educational categories are the same as the one previously explained in Chapter One and used in Chapter Two. The speakers of lower educational background are those who have high school as their highest degree, while the speakers of higher educational background are the ones who have schooling higher than high school or a college degree and above. Let us now begin with the results from adult male speakers.

3.5.1. Education - adult male speakers

As discussed above, there are ten adult male JI speakers whose utterances are investigated. This group consists of five male speakers of lower educational background and five others of higher educational background. First, the results from speakers of lower educational background are presented.

To present the results from male adult speakers of lower and higher educational background, a summary of tokens and percentages is given in Table 3.10.

Table 3.10: Function words in phrase-final position by male speakers

Adult male speakers of lower educational background							
Word forms	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
lagi	1	8	0	9	11%	89%	0%
nya	0	39	9	48	0%	81%	19%
iya (ya)	19	7	12	38	50%	18%	32%
jadi	3	0	0	3	100%	0%	0%
ya (question tag)	45	50	22	117	38%	43%	19%
begitu (gitu)	0	59	17	76	0%	78%	22%
itu (tu)	0	73	6	79	0%	92%	8%
ini (ni)	0	61	2	63	0%	97%	3%
TOTAL	**68**	**297**	**68**	**433**	**16%**	**69%**	**16%**
Adult male speakers of higher educational background							
Word forms	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
lagi	13	5	31	49	27%	10%	63%
nya	0	39	75	114	0%	34%	66%
iya (ya)	48	10	86	144	33%	7%	60%
jadi	3	0	4	7	43%	0%	57%
ya (question tag)	61	60	202	323	19%	19%	63%
begitu (gitu)	0	73	69	142	0%	51%	49%
itu (tu)	0	106	59	165	0%	64%	36%
ini (ni)	0	82	60	142	0%	58%	42%
TOTAL	**125**	**375**	**586**	**1086**	**12%**	**35%**	**54%**

Table 3.10 presents the occurrences and percentages of variants with final [-ʔ], [-h], and [Ø]. In Table 3.10, the total percentage of final [Ø] produced by adult male speakers of lower educational background (16%) is much lower than the total percentage of final [Ø] produced by adult male speakers of higher educational background (54%). Across the eight function words, the adult male speakers of lower educational background produced final [Ø] less than 33%, while the adult male speakers of higher educational background produced it between 36% and 63%. To make it clear, let us now compare the results between speakers of higher and lower educational categories by lexical items.

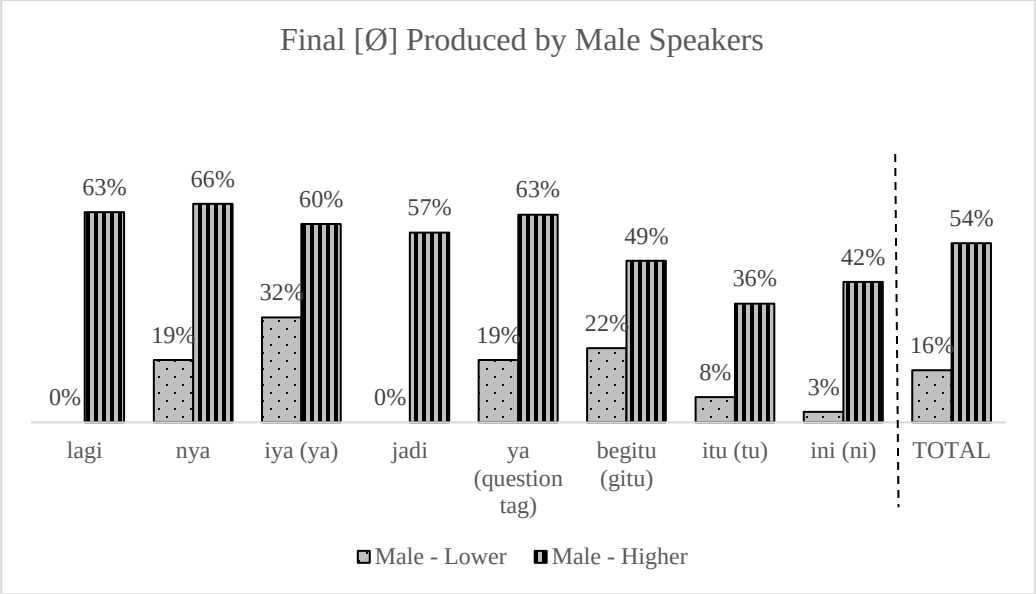


Figure 3.3: The grey bars with dots show the percentage produced by male speakers of lower educational background and the grey bars with stripes show the percentage produced by male speakers of higher educational background.

Figure 3.3 compares the percentages of final [Ø] produced by male speakers of lower and higher educational background. As we have seen so far, the distribution of variants with final [Ø] produced by the speakers of lower educational background range between 0% and 32% across the function words, a lower range of percentage of occurrence than the variants with final [-h] and [-ʔ]. This indicates that the choice of the variant with final [Ø], the influence of SI, is of limited occurrence in the results from male speakers of lower educational background.

Heretofore, we have seen that there is a relationship between male speakers' educational background and the patterns of choice of a variant with final [-ʔ], [-h], and [Ø]. Let us now observe if educational background also determines the patterns of variation among the female speakers.

3.5.2. Education - adult female speakers

This study examines five adult female speakers of lower educational background and five adult female speakers of higher educational background. We now compare the results for female speakers broken up by educational level in Table 3.11.

Table 3.11: Function words in phrase-final position by female speakers

Adult female speakers of lower educational background							
Word form	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
lagi	8	5	27	40	20%	13%	68%
nya	0	23	102	125	0%	18%	82%
iya (ya)	32	17	44	93	34%	18%	47%
ya (question tag)	24	21	170	215	11%	10%	79%
begitu (gitu)	0	69	124	193	0%	36%	64%
itu (tu)	0	76	72	148	0%	51%	49%
ini (ni)	0	31	26	57	0%	54%	46%
TOTAL	**64**	**242**	**565**	**871**	**7%**	**28%**	**65%**
Adult female speakers of higher educational background							
Word form	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
lagi	2	0	42	44	5%	0%	95%
nya	0	12	61	73	0%	16%	84%
iya (ya)	0	15	74	89	0%	17%	83%
jadi	3	0	11	14	21%	0%	79%
ya (question tag)	9	43	117	169	5%	25%	69%
begitu (gitu)	0	20	98	118	0%	17%	83%
itu (tu)	0	10	61	71	0%	14%	86%
ini (ni)	0	17	58	75	0%	23%	77%
TOTAL	**14**	**117**	**522**	**653**	**2%**	**18%**	**80%**

The total percentage of final [Ø] produced by adult female speakers of higher educational background (80%) is higher than adult female speakers of lower educational background (65%). Except for the word *ya* (question tag), the percentages of final [Ø] produced by adult female speakers of higher educational background in

most words are always higher. Figure 3.4 compares the percentage of final [ø] by lexical item.

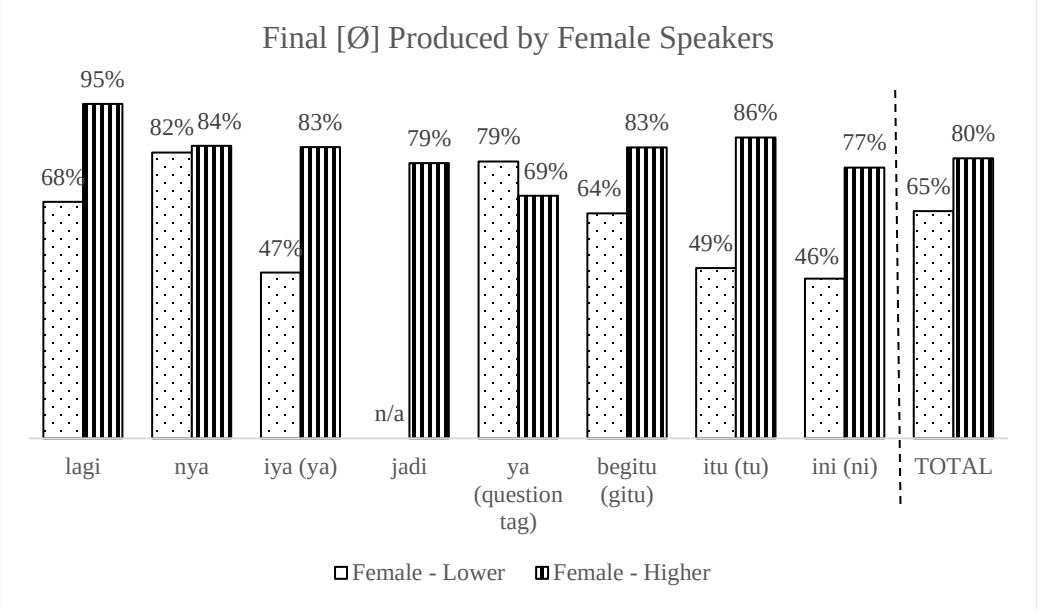


Figure 3.4: The white bars with dots indicate the percentage of final [Ø] produced by female speakers of lower educational background and the white bars with stripes show the percentage of final [Ø] produced by female speakers of higher educational background.

There is a total of only eight function words presented in Figure 3.4. It should be noted here that the word *tapi* is not presented because it was not produced at all, and the word *jadi* is not produced by speakers of lower educational background. The female speakers of lower educational background in general produced final [Ø] lower than those of higher educational category.

The results from the adult female speakers of higher educational background show clearly that the variant with final [Ø] is produced robustly in the range of 69% and 95% across the function words. Furthermore, final [Ø] is produced consistently higher than final [-ʔ] and/or [-h] across the function words. These results in Figure 3.4 suggest that the variant with final [Ø], as the SI influenced form, has exerted

significant influence on the speech production of female speakers of higher educational background.

Overall, the results in Table 3.4 show that the variant with final [Ø] produced by female speakers of higher educational background is much more robust in its occurrence than the variant with final [Ø] produced by female speakers of lower educational background. Similar to the results we found in the production of male speakers, the results from female speakers show that the factor of education appears to trigger the higher occurrence of the variant with final [Ø], the SI form. This suggests that education also determines the occurrence of the variant with final [Ø] among the female speakers.

Thus far, we have observed different patterns of distribution of the variants with final [-h], [-ʔ], and [Ø] that are determined by the factor of education within the same gender categories. To get a more comprehensive picture, it is therefore also important to observe the overall distribution of the variant with final [Ø], the SI form as produced across gender and educational categories. The comparison is presented in the next section.

3.5.3. Comparison across gender and educational background

The results we have so far show that the speakers of higher educational background generally produced the variant with final [Ø] more than the speakers of lower educational background. This happens in both gender categories. With this in mind, we need to consider carefully whether there is a cross-cutting interaction between gender and education. In this section, I elaborate on the interaction of these two factors in Figure 3.5.

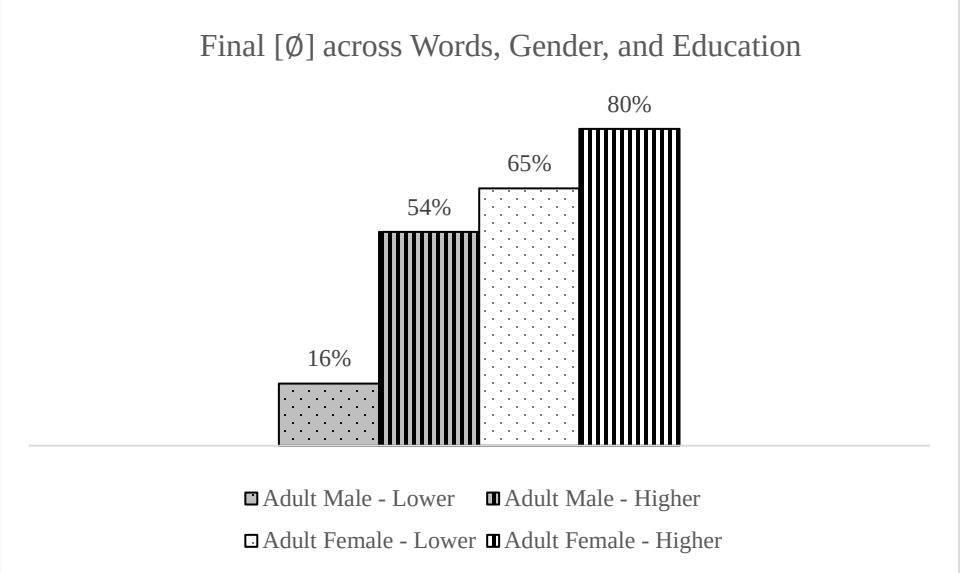


Figure 3.5: The grey bars with dots represent the percentages by male speakers of lower educational background, the grey bars with stripes display the percentages by from male speakers of higher educational background, the white bars with dots show the percentages by female speakers of lower educational background, and the white bars with stripes exhibit the percentages by female speakers of higher educational background.

In Figure 3.5, the patterns of distribution, in general, show stratified distributions. It can be seen that the lowest occurrence of the variant with final [Ø] is found among the male speakers of lower educational background. The male speakers of higher educational background, however, produce a higher percentage of the variant with final [Ø] than the male speakers of lower educational background, but the educated male speakers still produce a lower percentage of the variant with final [Ø] than the female speakers of lower educational background. Finally, the highest percentage of the variant with final [Ø] is found among female speakers of higher educational background. We see that both gender and educational level result in different degrees of use of the SI influence form.

As a final point, across educational categories, the female speakers produce more variants with final [Ø], the SI variant, and the male speakers produce fewer variants with final [Ø]. That is to say, the male speakers are more likely to use the

variants with final [-h] and [-ʔ], following the Betawi conservative forms, whereas female speakers of the corresponding educational class preserve fewer forms with final [-h] and [-ʔ], moving away from the Betawi forms.

The overall results also show that within the same educational categories, we can see that the occurrence of the variant with final [Ø] is distributed differently between female and male speakers. The female speakers of lower educational background produce a higher number of variants with final [Ø] than the male speakers of lower educational background. In accordance with this, the female speakers of higher educational background produce a higher percentage of variants with final [Ø] than the male speakers of higher educational background. Female speakers are more likely to adopt the SI influenced form, the variant with final [Ø] across function words and across educational backgrounds more frequently than the male speakers. The female speakers of lower educational background produce a higher percentage of occurrence of the variant with final [Ø] than the male speakers of higher educational background.

These overall results demonstrate an interesting phenomenon of cross-cutting interaction between gender and education. The stratified pattern of distributions illustrated in Figure 3.5 has provided a better understanding of how these two aspects intersect.

After observing the adult speakers, it is now important to examine the patterns in the production of variants with final [-h], [-ʔ], and [Ø] among younger speakers of JI. I particularly would like to observe how the patterns of variation are identified in the pre-adolescent speakers' speech. I aim to identify if their patterns of variation mirror the patterns of adult speakers. The effect of education for pre-adolescent female speakers is considered in the next section.

3.5.4. Pre-adolescent speakers

The pre-adolescent speakers involved in this chapter are the same as the ones in Chapter Two. However, due to very limited numbers of the eight function words produced by pre-adolescent male speakers in the corpus, I only present the results from pre-adolescent female speakers. The actual number of relevant tokens produced by the pre-adolescent male speakers is less than thirty tokens. They are still provided in Table A.1 of Appendix A, but since the data is so sparse, I decided not to include them in this chapter.

The ages of pre-adolescent speakers range between ten and thirteen years of age and since all of the speakers are still either in elementary or middle school, the educational categories used for them are based on their parents' educational background. There are three pre-adolescent female speakers whose parents are of lower educational background and two pre-adolescent female speakers whose parents are of higher educational background.

To compare the results between the two groups of female pre-adolescent speakers, I provide the numbers of tokens and percentages of the variants with final [-ʔ], [Ø], and [-h] across function words from both groups. I display them by word forms from both groups in Table 3.12.

Table 3.12: Final [-ʔ], [-h], and [Ø] (by words) produced by pre-adolescent female speakers.

Phrase-final by pre-adolescent female speakers (parents of lower educational background)							
Word forms	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
lagi	7	0	57	64	11%	0%	89%
nya	0	3	50	53	0%	6%	94%
iya (ya)	17	3	46	66	26%	5%	70%
jadi	4	0	2	6	67%	0%	33%
ya (question tag)	15	8	69	92	16%	9%	75%
begitu (gitu)	0	0	19	19	0%	0%	100%
itu (tu)	0	6	38	44	0%	14%	86%
ini (ni)	0	11	60	71	0%	15%	85%
TOTAL	**43**	**31**	**341**	**415**	**10%**	**7%**	**82%**
Phrase-final by pre-adolescent female speakers (parents of higher educational background)							
Word forms	[-ʔ]	[-h]	[Ø]	Total	[-ʔ]	[-h]	[Ø]
lagi	0	3	13	16	0%	19%	81%
nya	0	7	43	50	0%	14%	86%
iya (ya)	1	8	22	31	3%	26%	71%
jadi	3	0	0	3	100%	0%	0%
ya (question tag)	1	33	72	106	1%	31%	68%
begitu (gitu)	0	4	16	20	0%	20%	80%
itu (tu)	0	20	29	49	0%	41%	59%
ini (ni)	0	44	38	82	0%	54%	46%
TOTAL	**5**	**119**	**233**	**357**	**1%**	**33%**	**65%**

The percentages produced by female pre-adolescent speakers whose parents are of lower educational background, in general, show that the occurrence of variants with final [Ø] is very robust, except for the word *jadi*. If we exclude the word *jadi*, the percentages of final [Ø] range between 70% and 100%, while the occurrences of variants with final [-h] and [-ʔ] are less than 27%. These results suggest that the variant with final [Ø] (SI variant) has mainly influenced the function words produced by the pre-adolescent female speakers whose parents are of lower educational background.

The results from pre-adolescent female speakers whose parents are of higher educational background also show robust occurrences of the variant with final [Ø] across the ten function words, except for the words *jadi* and *ini (ni)*.

The total percentages show that the variant with final [Ø] is produced more frequently by the pre-adolescent female speakers whose parents are of lower educational background (82%) than those of parents are of higher educational background (65%). Figure 3.6 compares the percentage of final [Ø] between the two groups of speakers by lexical items.

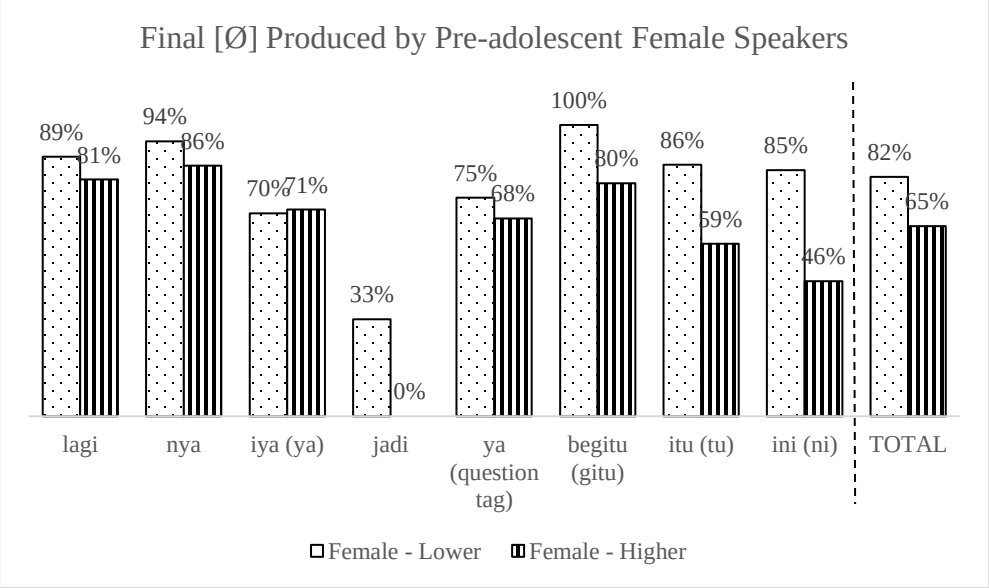


Figure 3.6: The white bars with dots show the percentages by female speakers of lower educational background, and the white bars with stripes exhibit the percentages by female speakers of higher educational background.

As we can see here, the results from both groups of speakers show similar patterns of distribution across the function words. In contrast to the results from adult speakers that are conditioned by educational categories, it seems that the results from pre-adolescent speakers are not conditioned by educational categories. In fact, we find in most words that the pre-adolescent female speakers whose parents are of higher educational background produced a somewhat fewer variant with final [Ø] than pre-

adolescent female speakers whose parents are of lower educational background, but this difference is not likely to be meaningful. This suggests that the variant with final [Ø], the SI influenced form, has had a significant influence on the speech of pre-adolescent female speakers, regardless of their parents' educational background.

3.6. Summary

We have seen so far that linguistic factors determine the patterns of variation of final [Ø] in phrase-medial position. The general pattern of use is that [-ʔ] and/or [-h] are generally realized as [Ø] in phrase-medial position. In phrase-final position, we found that linguistic factors also determine the occurrences of [-ʔ] and [-h] in certain function words. Final [-ʔ] and [-h] are generally present,—i.e., they are not realized as [Ø], in phrase-final position in *udah*, *masih*, *ada*, *juga* and *nggak*. This suggests that final [-ʔ] may be underlying in *ada, juga*, and *nggak*, while final [-h] may be underlying in *udah*, and *masih*. In *lagi*, *nya, iya (ya), jadi, saya, ya* (question tag), *begitu (gitu), itu (tu),* and *ini (ni),* final [-ʔ] and [-h] generally show patterns of variation that are not conditioned by linguistic factors. Interestingly, this study found that non-linguistic socio-indexical factors, namely gender and education, help determining account in part for their patterns of variation.

In general, the variant with final [Ø] form occurs more robustly in the speech of adult speakers of a higher educational level. Female adult speakers of higher educational background produced higher percentages of variants with final [Ø] than female adult speakers of lower education. Similarly, male adult speakers of higher educational background produced higher percentages of variants with final [Ø] than male adult speakers of lower educational attainment. There is a cross-cutting relationship between gender and education, where male adult speakers of higher educational background produced a lower percentage of variants with final [Ø] than

female speakers of lower educational background. This means that regardless of their educational background, adult female speakers always produced more variants with final [Ø] than adult male speakers. This is in accordance with previous studies in the Western communities, which found that female speakers produced more standard forms than male speakers, e.g. Trudgill (1983), Meyerhoff (2011), Holmes (2013), among others. It is also not surprising that speakers of higher educational background produce more SI influenced forms than less educated speakers.

In contrast to the results from the adult speakers, the results from pre-adolescent speakers show that the factor of education does not condition the occurrence of the variant with final [Ø]. The pre-adolescent speakers whose parents are of higher educational background produced a slightly lower percentage of the variant with final [Ø] than pre-adolescent speakers whose parents are of lower educational background but the difference is small and therefore not meaningful. These results are different from those of adult speakers. Although the results from pre-adolescent speakers are based on a small number of speakers and confined to female speakers, they still show interesting cross-generational differences between older and younger speakers.

To sum up, the variant with final [Ø], the SI influenced form, has exerted influence on certain function words produced by JI speakers. We have found that female speakers produced more variants with final [Ø] than male speakers, and speakers of higher educational background produced more final [Ø] than speakers of lower educational category. However, the factor of education does not seem to condition the patterns of variant choice among pre-adolescent speakers. This is evidence that most probably the SI influenced form, has by now spread to all social classes among the younger generation of speakers.

The results from the corpus show new evidence of a complex blend of SI and Betawi in the speech of JI speakers. The influence of Standard Indonesian on the speech of Jakarta Indonesian speakers is clearly observed in the high occurrence of variants with final [Ø] found in most function words, while the remnants of Betawi are seen most robustly in higher rate of final [-ʔ] and [-h] among male speakers of lower educational background.

CHAPTER FOUR

PATTERNS OF VARIATION OF NASAL PREFIX

4.0. Introduction

Standard Indonesian (SI) has a widely used active verbal prefix /məN-[32]/ marking the active voice which alternates in its shape at the prefix-root boundary. The nasal in coda position of the prefix assimilates to a root-initial obstruent. Within a generative framework, this pattern was first described systematically by Lapoliwa (1981). This phonological process is commonly referred to as nasal assimilation and substitution. The recent literature (Pater 1999, 2001) investigates the formal driving force of nasal assimilation in Indonesian within the Optimality Theory framework (OT; Prince and Smolensky 1993, 2004). Most previous studies were devoted to Standard Indonesian as spoken in formal contexts. Less attention, however, has been given to the pattern of this verbal prefix in a more colloquial variety of Indonesian, as the casual everyday language spoken in Jakarta—i.e., Jakarta Indonesian (JI), with the cognate prefix /N-/ or /ŋə-/. This verbal prefix will be referred to here as the nasal prefix.

Interestingly, the use of the nasal prefix in JI exhibits variation beyond the phonological conditioning environment. First, in JI there is a variant that consists of the root alone (henceforth: bare verbs). Second, while /ŋə-/ vs /N-/ is phonologically conditioned for sonorants and voiceless obstruents, the realization for voiced obstruents is variable. Finally, there is a fourth variant [məN-] which is the SI form.

The four variants occur when the nasal prefix patterns with root-initial voiced obstruents [b-, d-, d͡ʒ-, and g-]. The variation is exemplified in (1):

[32] The symbol N- is explained in 4.1 and 4.2 below.

(1) Root: bəli ‘to buy’

Active forms:
(a) Ø-bəli (JI)
(b) ŋə-bəli (JI)
(c) m-bəli (JI)
(d) məm-bəli (SI)

When [məN-] is found in informal speech, it can be considered as code-switching. This is also the case of our corpus, as further discussed in 4.3. While the bare verb is more common than other variants, it is not that informative for our study. Since the variant that consists of bare verbs is chosen equally by all of the groups that we examine in this study (see 4.3)—that is, all age groups, both genders, and all subjects classified by educational attainment, show almost the same percentage of occurrences of the variant consisting of the bare verbs alone, this variant does not provide insight into social characteristics of the JI community.[33]

This study supports the impressionistic observation that the speakers of JI variably produce these two different variants. In order to describe the patterns of variation of nasal assimilation in JI, this study examines the variation which occurs in the 2000s corpus (Gil et al., 2015) with adults and pre-adolescents and the 1970s corpus (Wallace, 1976). A production task was also conducted with JI native speakers to observe whether or not the results from this task mirror the results from the spoken corpus. The corpus shows variability when the nasal prefix is combined with roots that have initial voiced obstruents. This chapter investigates the sources of this variability, whether the variability is due to phonological conditionings or social factors. The

[33] The variant consisting of the bare verbs alone is homophonous with other verb forms. They consist of the verb morpheme in its underlying form. Other verb forms consisting of bare verbs alone have different morphemic context (cannot be substituted for by a root plus nasal assimilation, or a root plus [ŋə-], or a base plus [məN-]). The most frequent are a form of the passive (called “Type 2”), as described by Dardjowidjojo (1978), Sneddon (1996), Cole et al. (2006), among others, and also “middle” verb described by Wolff (1986:B.33).

organization of this chapter is as follows. Description of the nasal prefix is presented in 4.1 and 4.2. Then, the corpus study is presented in 4.3 – 4.5. The speech production task is elaborated in 4.6. It is then followed by an across generations comparison in 4.7 with results from the 1970s and pre-adolescent speakers. Finally, 4.8 provides discussion and conclusions of this study.

4.1. Nasal prefix in Standard Indonesian

In this section, the standard SI prefix [meN-] is discussed. In SI, a nasal in the coda of the prefix has various shapes when it patterns with root-initial consonants. It is assumed widely that the underlying nasal coda of the prefix is a placeless nasal or /-ŋ/ which is symbolized /məN-/ or /məŋ-/ in SI (following previous major works as in Sneddon 1996 and 2006, Pater 1999, Dardjowidjojo 1978, MacDonald & Dardjowidjojo 1967, among others).

The prefix patterns as follows when combined with root-initial sonorants and vowels.[34] First, we can see that nasal assimilation does not apply to the root-initial sonorants and vowels. We can see that the nasal prefix is realized as [mə-] when combined with the root-initial sonorants, including liquids and glides and nasals in (2a-h).

(2) Sonorants initial roots:

Root:	Prefixed forms [mə-]:	
(a) lamar	mə-lamar	‘to propose’
(b) rusak	mə-rusak	‘to destroy’
(c) jakin+i[35]	mə-jakini	‘to believe’
(d) wabah	mə-wabah	‘to be epidemic’
(e) makan	mə-makan	‘to eat’

[34] Some variation in this pattern are seen with loanwords. I have conducted a parallel study on this variation (Kurniawan, 2016). The variation in SI occurs when the nasal prefix occurs with root-initial voiceless stops [p, t, k] in English, Dutch, Portuguese and Arabic loanwords. For example, underlying form /məN+target+kan/ ‘to target’ are possibly uttered by speakers as [mənargetkan] and [məntargetkan] ‘to target’.

[35] The suffix *-i* has a locative function.

(f) nilai	mə-nilai	‘to grade’
(g) ɲaɲi	mə-ɲaɲi	‘to sing’
(h) ŋaŋgur	mə-ŋaŋgur	‘to do nothing’

The nasal in the coda position is realized as velar [ŋ] when the roots begin with vowels (3a-e), and [-h] (3f).

(3) Vowel and [-h] initial roots:

Root:	Prefixed forms [məŋ-]:	
(a) aŋkat	məŋ-aŋkat	‘to lift’
(b) obat+i	məŋ-obati	‘to medicate’
(c) undaŋ	məŋ-undaŋ	‘to invite’
(d) ekor	məŋ-ekɔr	‘to follow’
(e) isi	məŋ-isi	‘to fill’
(f) hantam	məŋ-hantam	‘to hit’

The data in (4) show the pattern of nasal prefix when it is combined with roots that begin with voiced obstruents in SI.

(4) Voiced obstruent initial roots:

Root:	Prefixed forms (assimilation):	
(a) bəli	məm-bəli	‘to buy’
(b) dapat	men-dapat	‘to get’
(d) d͡ʑawab	məɲ-d͡ʑawap	‘to answer’
(c) guntiŋ	məŋ-guntiŋ	‘to cut with scissors’

The underlying nasal assimilates to the place of articulation of the root-initial voiced obstruents forming homorganic clusters. The next pattern is with root-initial voiceless obstruents.

(5) Voiceless obstruent initial roots:

Root:	Prefixed forms (substitution):	
(a) pilih	məm-ilih	‘to choose, to vote’
(b) tulis	mən-ulis	‘to write’
(c) kasih	məŋ-asih	‘to give’
(d) sapu	məɲ-apu	‘to sweep’

Root:	Prefixed forms (assimilation):	
(e) t͡ɕari	məɲ-t͡ɕari	‘to seek’

The pattern in (5a-c) is termed as nasal substitution by many phonologists. From a derivational perspective, the nasal assimilates to the root-initial voiceless consonants [p, t, k] which then forms a homorganic cluster. This process is then followed by deletion of the initial voiceless consonant. For example, the root [pilih] is first prefixed as [məm-pilih], and then [p] is deleted so that the final form is realized as [məm-ilih].

The fricative /s/ in (5d) becomes a palatal nasal [ɲ] rather than an alveolar nasal.[36] Lapoliwa (1981) proposed that the affricate /t͡ɕ/ in (5e) is realized as voiceless lamino alveolo-palatal affricate. No substitution is applied to /t͡ɕ/-initial root but rather the underlying nasal assimilates to the affricate and is realized as the palatal nasal /ɲ/ but the affricate /t͡ɕ/ is not deleted.

Let us now turn to the description of the nasal prefix in JI.

4.2. Nasal prefix in Jakarta Indonesian

The nasal prefix in JI is cognate with the nasal prefix in SI. The description below is based on my previous study (Kurniawan, 2015) and coincides closely with the patterns described by Ikranagara (1980), Muhadjir (1981) and Sneddon (2006).

As discussed in 4.0, the active verb has four different alternants that vary between bare verbs with no prefix, nasal assimilation, [ŋə-], and [məN-]. Further, the bare verbs are homonymous with other bare verbs which are of a different morpho-syntactic context.

Similar to the nasal coda of SI, it is assumed that the underlying nasal coda of the prefix is /N-/ in Betawi Malay (Muhadjir, 1981) and JI (Sneddon, 2006). However,

[36] Wolff (2010) shows that Malay/Indonesian /s/ derives from Proto-Austronesian phoneme *c, which are on alveolar or palatal affricate. This is likely the reason why /s/ is realized as [ɲ] rather than [n].

other studies such as Ikranagara (1980) suggested /ŋ-/ as the underlying form for Betawi. My current study does not aim to solve these different hypotheses of the underlying forms, but rather to focus more on the patterns of variation that may contribute to our understanding of the development of JI.

Similar to SI, the nasal prefix in JI also has several alternants. The patterns of the alternants are presented as follows. First, the roots that begin with liquids, glides, and vowels in JI are presented in (6) and (7).

The alternants with [ŋə-] occur with the root-initial liquids, glides, and [-h] as in (6a-e), while with root initial vowels as in (7a-e), this prefix is realized as a velar nasal.

(6) Sonorant initial roots:

Root:	Prefixed forms [ŋə-]:	
(a) lamar	ŋə-lamar	'to propose'
(b) rusak	ŋə-rusak	'to destroy'
(c) jakin+in[37]	ŋə-jakinin	'to believe'
(d) wabah	ŋə-wabah	'to be epidemic'
(e) harus+in	ŋə-harusin	'to require'

(7) Vowel initial roots:

Root:	Prefixed forms [ŋ-]:	
(a) aŋkat	ŋ-aŋkat	'to lift'
(b) obat+in	ŋ-obatin	'to medicate'
(c) undaŋ	ŋ-undaŋ	'to invite'
(d) ekor	ŋ-ekɔr	'to follow'
(e) isi	ŋ-isi	'to fill'

.

The next data in (8) illustrate the nasal prefix when conditioned by root-initial voiceless obstruents.

[37] The suffix *-in* has locative/applicative function.

(8) Voiceless obstruent roots:

Root:	Prefixed forms (substitution):	
(a) pilih	m-ilih	‘to choose, to vote’
(b) tulis	n-ulis	‘to write’
(c) kasih	ŋ-asih	‘to give’
(d) sapu	ɲ-apu	‘to sweep’
(e) t͡ɕari	ɲ-ari	‘to seek’

The nasal prefix patterns in (8) are similar to SI, as presented in (5). In her study of Betawi, Ikranagara (1980) proposed that this phonological process involve two steps. First, the nasal assimilates to the root-initial voiceless consonants which then forms a homorganic cluster as in [m-pilih] ‘to choose, to vote.’ Second, the initial [p] is then deleted and it finally surfaces as [m-ilih]. Data in (9) show the patterns with root-initial nasals. When the nasal prefix is combined with root-initial nasal, they are realized as a single nasal, as shown in (9).

(9) Nasal initial roots:

Root:	Prefixed forms Ø:	
(a) makan	makan	‘to eat’
(b) nilai	nilai	‘to grade’
(c) ɲaɲi	ɲaɲi	‘to sing’
(d) ŋaŋgur	ŋaŋgur	‘to do nothing’

The approach that is used to account for the SI facts could be extended to account for the phonological alternation in JI. However, root-initial voiced obstruents exhibit different patterns from the root initial sounds of the nasal prefix that we have discussed so far. For root-initial voiced obstruents there is a pattern of variation as displayed in (10a-d) below.

(10) Voiced obstruent initial roots:

Root:	Prefixed forms (assimilation ~ [ŋə]):	
(a) bəli	i. m-bəli	‘to buy’
	ii. ŋə-bəli	
(b) dapət	i. n-dapət	‘to get’
	ii. ŋə-dapət	
(c) d͡ʑawab	i. ɲ-d͡ʑawap	‘to answer’
	ii. ŋə-d͡ʑawap	
(d) guntiŋ	i. ŋ-guntiŋ	‘to cut with scissors’
	ii. ŋə-guntiŋ	

The forms in (10a-d. i) are what would be expected and are used by some JI speakers. However, the forms in (10a-d. ii) with [ŋə-] variants–similar to the forms seen for liquids and glides–are also observed for some speakers. In his study of JI, Sneddon (2006) mentioned such variation but did not offer a full description of it. Kurniawan (2015) offered a fuller description of the variation based on a corpus study and speech production task.

Based on previous studies of Betawi (Muhadjir, 1981; Ikranagara, 1980; among others), the variation in (10) is also found among Betawi speakers. As described specifically by Ikranagara (1980:135), the nasal assimilation [m-b, n-d, ɲ-d͡ʑ, ŋ-g] in Betawi is the same as the one used in Javanese and the variant with [ŋə-] is closely related to Sundanese [ŋa-]. Interestingly, Nothofer (1995) reported that [ŋə-] is also found in the southwestern dialects of Malay, particularly Bangka Malay. He proposed that Betawi speakers adopted [ŋə-] from Bangka Malay rather than Sundanese. While the solution to this disagreement is beyond the scope of this current study, this background will be relevant to our discussion in 4.8.

The key question to be addressed in this chapter is what conditions the variation and why. One of the central goals of this study is to shed light on the pattern of variation of the nasal prefix and to examine how the results of this study may contribute to our understanding of the development of JI. Rather than relying on

impressionistic observation, data in this study are drawn from the 2000s corpus (Gil et al., 2015), the 1970s corpus (Wallace, 1970), and from a production task experiment. It is important to see how this variation is actually produced spontaneously by native speakers in naturalistic data, and how it is produced in a more controlled setting, as in the speech production task. To the best of my knowledge, none of the prior studies of nasal assimilation in Indonesian have used a large data set from naturalistic conversation and a speech production task. The investigations with the JI corpus and production task aim to seek evidence whether the two different variants shown in (10) are due to linguistic or social factors.

In the case of the nasal prefix, the linguistic factors may involve morpho-phonological and lexical conditioning, while non-linguistic factors may include social factors that result in intra-speaker and inter-speaker variation. In terms of morpho-phonological conditioning, place of articulation might determine patterns of variation of the nasal prefix. For example, speakers may produce more [m-b] than [ŋə-b] in bilabial-initial roots, but on the other hand, they produce more [ŋə-g] than [ŋ-g] in velar-initial roots. In lexical conditioning, some words may be codified [m-b], while other words maybe codified [ŋə-b] in the speakers' lexicon. For example, native speakers may produce [m-bəli] 'to buy', but never [ŋə-bəli]. In other lexical items, they may produce [ŋə-bantu] 'to help', but never [m-bantu]. Equally important, we also need to investigate systematically if the variation is conditioned by non-linguistic factors such as gender and education, similar to the results we have found in Chapters Two and Three in this current study. We turn first to the corpus study and then the speech production task.

4.3. Results of the corpus - phonological and lexical conditioning

As we have seen in (10), JI has two variants of the active prefix in voiced obstruent

initial stems. They are realized in the variant with assimilation as in [m-b, n-d, ɲ-d͡ʑ, ŋ-g,] or variant with [ŋə-] as in [ŋə-b, ŋə-d, ŋə-d͡ʑ, and ŋə-g]. As discussed in 4.0, there are also variants with bare verbs as in [b-, d-, g-, d͡ʑ-] and variants with [məN-] as in [məm-b, mən-d, məŋ-g, məɲ-d͡ʑ] found in the corpus. The variant with assimilation, [ŋə-], and bare verbs are used in informal settings (JI), while the variant with [məN-] is used in formal settings (SI).

The root /bəli/ 'buy', as exemplified in (1), when combined with the nasal prefix may be realized in four different variants, depending on different settings and registers. Table 4.1 below shows the four variants and their relationships with their settings and varieties.

Table 4.1: Examples of four variants of nasal prefix

Variants	Settings	Varieties
[m-bəli]	informal	Jakarta Indonesian
[ŋə-bəli]	informal	Jakarta Indonesian
[bəli]	informal	Jakarta Indonesian
[məm-bəli]	formal	Standard Indonesian

This study searched the four variants in the corpus but focuses primarily on analyzing the variant with assimilation, and the variant with [ŋə-].

As explained in 1.6.1, the data from twenty-one corpus participants are analyzed in this study.[38] The organization of the results is as follows. This section is focused on the phonological and lexical conditioning, regardless of speakers' social categories. Following that, sections 4.4 presents the results based on speakers' social

[38] The number of speakers in this chapter is different from Chapter Two and Three. In this chapter, there is a total of five male speakers of higher educational background and seven (two additional) male speakers of higher educational background. I added the number of male speakers of higher educational background since the production of the nasal prefix is limited among this group. For female speakers, there is a total of five female speakers of lower educational background and four female speakers of higher educational background (one speaker is excluded since she did not produce nasal prefix at all). Thus, there is a total of twenty-one speakers involved.

categories, specifically, gender and educational background.

First, this section aims to observe whether the patterns of variation are conditioned by phonological conditioning, specifically place of articulation. Additionally, the second factor that is examined is lexical conditioning. To observe the phonological conditioning, the results presented in this section are generated from the results of a total of twenty-one speakers, regardless of their social categories. This method allows us to see if the occurrence of the nasal prefix is conditioned by place of articulation and if this condition is applicable to all speakers, regardless of their social background.

To examine the lexical conditioning, some speech samples from a few speakers are presented to see whether the corpus exhibits occurrence of nasal prefix variation within the same lexical items. This enables us to observe intra-speaker variation, in which one lexical item can be produced in two variants by the same individual speaker. Let us now first observe the overall results from the total of twenty-one JI speakers included in the corpus study in 4.3.1.

4.3.1. Overall results - all variants

In the overall results, there are four variants of the nasal prefix presented in this section. They are variants with bare verbs, assimilation, [ŋə-], and [məN-]. It is necessary to examine them all since we need to look whether or not the occurrence of each variant in the corpus is conditioned by place of articulation. In relation to the registers described in Table 4.1, it is also important to specifically account for the occurrence of SI variant [məN-] used in colloquial settings. Figure 4.1 displays the overall occurrence of the four variants of the nasal prefix.

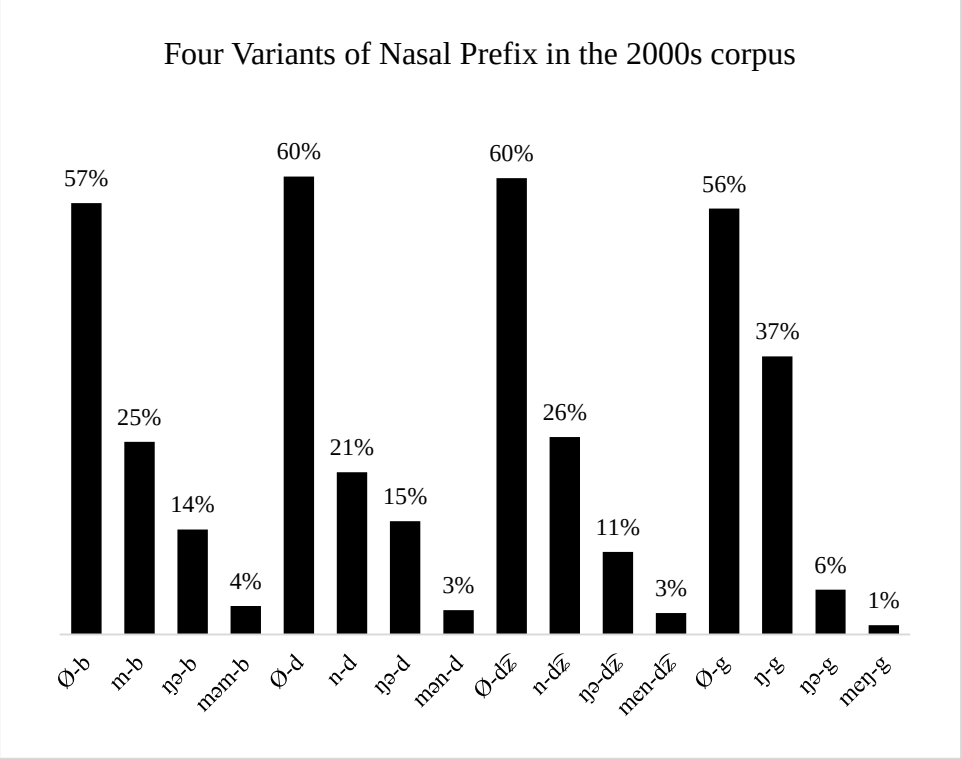


Figure 4.1: Percentages of four variants of nasal prefix.

Table 4.2: Occurrence of nasal prefix – all variants

	Bare verbs	Assimilation	ŋə-	məN-	Total	Percentage
Ø-b	226					57%
m-b		101				25%
ŋə-b			55			14%
məm-b				15	397	4%
Ø-d	113					60%
n-d		40				21%
ŋə-d			28			15%
mən-d				6	187	3%
Ø-d͡ʑ	127					60%
n-d͡ʑ		55				26%
ŋə-d͡ʑ			23			11%
mən-d͡ʑ				6	211	3%
Ø-g	323					56%
ŋ-g		211				37%
ŋə-g			34			6%
məŋ-g				7	575	1%
Total	789	407	140	34	1,370	
Percentage	58%	30%	10%	2%	100%	

The x-axis in Figure 4.1 exhibits the categories of each nasal prefix variant. They are structured based on the four categories of place of articulation, which are bilabials [Ø-b ~ m-b ~ ŋə-b ~ məm-b], alveolars [Ø-d ~ n-d ~ ŋə-d ~ mən-d], (alveo)-palatal [Ø-d͡ʑ ~ n-d͡ʑ ~ ŋə-d͡ʑ ~ mən-d͡ʑ], and velars [Ø-g ~ ŋ-g ~ ŋə-g ~ meŋ-g]. The vertical bars display the percentages of nasal prefix variants. The percentage of each variant is calculated based on the actual tokens production in the corpus. For example, [Ø-b-] was produced 226 times (57%), [m-b-] was produced 101 times (25%), [ŋə-b-] was produced fifty five times (14%), and [məm-b-] was produced fifteen times (4%). They are altogether totaling 397 tokens produced (100%). The search of these 397 tokens was done on the twenty-one speakers. The results of the retrieval, however, do not come from all of these twenty-one speakers. The results retrieved are only from the speakers who produced relevant tokens. There is a total of 1,370 tokens of nasal prefix produced by the twenty-one speakers retrieved from the corpus. This calculation and search methods are applied to all results presented in the rest of this chapter.

The overall occurrence of the nasal prefix in Figure 4.1 shows an interesting skewed occurrence across the place of articulation. We can see that bare verbs have robust occurrences between 56% and 60%, the occurrences of variant with assimilation vary between 21% and 37%, the occurrences of variant with [ŋə-] vary in the range of 6% and 15%, and the occurrences of variant with [məN-] are between 1% and 4%. These patterns of occurrence are found across the place of articulation, i.e., [b-, d-, d͡ʑ-, and g-] initials. The results suggest that the place of articulation does not determine the occurrence of the nasal prefix in JI, although it has some effect. The similar percentages of the frequency of the bare-verb variant across all social classes, age groups, and both genders may indicate that this variant is the neutral form among

other variants. The issue of bare verbs is further discussed later in 4.8 below.

It is important to note here that the SI variant is much less frequent in occurrence than the other three colloquial variants. As expected, it shows that styles and conversational settings, as displayed in Table 4.1, play important roles in determining the limited occurrence of the SI variant. The results of SI variant, although are not expected and generally limited, are quite striking. The context that conditions the choice of SI form needs to be examined to determine if indeed the choice of the SI form may be considered to be a case of style shift.

In short, the bare verbs and the standard variant [məN-] are not the primary focus of our analysis. The variation that yields substantial results are the variants with nasal assimilation and those with [ŋə-] before voiced stop initial roots. Therefore, the primary focus of this chapter is devoted to elaborating the results of these two variants only. When we are focusing on these two, results are presented as the percentage from the nasal assimilated variant, since these two variants together make up 100%. The overall results for these two variants are presented in 4.3.2.

4.3.2. Overall results – nasal assimilation

After narrowing down the results to the assimilated and [ŋə-] variants, let us now see if the varied patterns of occurrence we have are conditioned by place of articulation or lexical items.

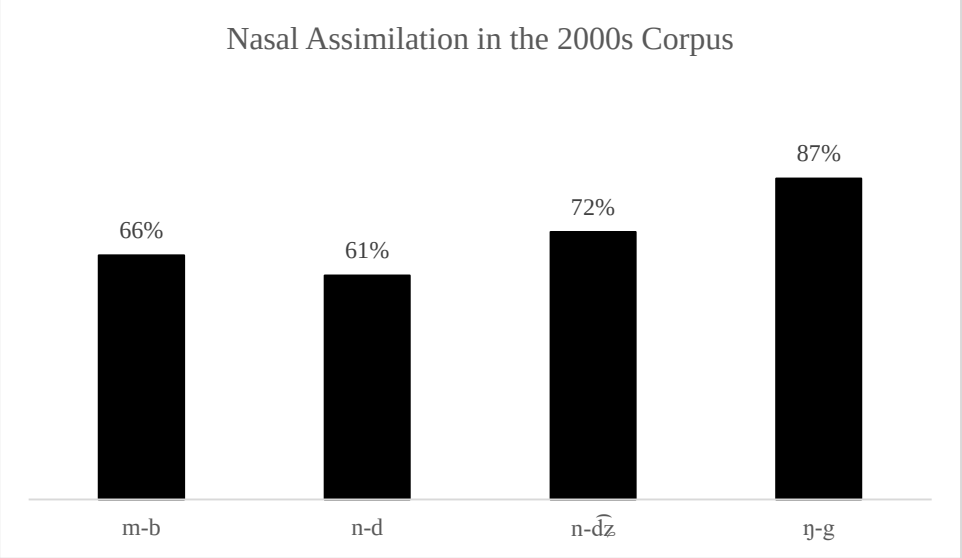


Figure 4.2: The x-axis lists the realization of nasal assimilation by place of articulation. The vertical bars present their percentages. The two variants (assimilation and [ŋə-]) together make up 100%.

In Figure 4.2, the realization of nasal assimilation is shown by place of articulation: bilabials (m-b ~ ŋə-b), alveolars (n-d ~ ŋə-d), (alveo)-palatal (n-d͡ʒ ~ ŋə-d͡ʒ), and velars (ŋ-g ~ ŋə-g). The percentages are counted from the numbers of tokens production produced in the corpus, as presented in Table 4.2. For example, the [m-b] was produced 101 times (66%), and the [ŋə-b] was produced 55 times (35%) in the corpus. The total number of tokens of that occur in the utterances of the twenty-one speakers' is 547 tokens. The details are found in Table 4.2.

We can see that across the place of articulation, nasal assimilation is produced at least 60% of the time. The results suggest that place of articulation has little effect on the patterns of variation of the nasal prefix. The one case where the place of

articulation might matter is velars [ŋ-g] where the percentage of assimilation is 87%, somewhat higher than the others. The difference between [n-d] (61%) and [ŋ-g] (87%) suggests that there is an effect of velar place. As seen below there are some effects of place but not the kind of systematic patterns usually expected due to phonological conditioning and the dataset is not balanced enough to allow us to reach firm conclusions about these differences.

The next aspect we should consider is lexical conditioning. If JI shows lexical conditioning, in which one lexical item may only be produced in one form, we would find no variation by lexical items and we also would not be able to find intra-speaker variation. My current study shows that the corpus exhibits occurrence of the variant with assimilation and the variant with [ŋə-] forms the same lexical items and place of articulation. The same lexical item can be produced in two forms by the same individual speaker. Table 4.3 below exemplifies intra-speaker variation within the same place of articulation, in this case, bilabials, as shown in the corpus.

Table 4.3: Examples of intra-speaker variation

Speakers	Root	Nasal Assimilation	[ŋə-]	Gloss
M-H-S4	bakar	m-bakar (1)	ŋə-bakar (1)	to burn
F-H-S3	bawa	m-bawa-in (1)	ŋə-bawa-in (2)	to carry something for someone
F-L-S1	bərantak	m-bərantak-in (1)	ŋə-bərantak-in (1)	to make a mess
M-H-S4	bəli	m-bəli (2)	ŋə-bəli (1)	to buy
M-H-S3	bajar	m-bajar (2)	ŋə-bajar (1)	to pay

We can see from the results in Table 4.3 that indeed the same speaker produces both variants for the same lexical item. The number in the parentheses indicates the numbers of tokens. Here, intra-speaker variation occurs in JI corpus where both variants can be uttered in the spontaneous speech by the same speaker.

It should be noted that the intra-speaker variation in the results above does not seem to be caused by different social settings. All the speakers uttered them when they

interacted with other speakers in similar kinds of informal settings.

In summary, the choice of the variant with nasal assimilation or [ŋə-] is not generally conditioned by place of articulation nor is it conditioned by the particular lexical items. Additionally, the results also show that the variant with nasal assimilation is of higher frequency than the variant with [ŋə-]. Now we need to examine non-linguistic factors, namely gender and education, which are described in 4.4.

4.4. Results of the corpus – gender

As described above, the total number of speakers investigated in this chapter is twenty-one. They consist of nine female speakers and twelve male speakers. First, we consider how gender categories may affect the occurrence of nasal assimilation. We need to determine whether patterns of nasal assimilation differ between female and male speakers.

In Figure 4.3, we can see that the overall occurrence of the assimilation produced by both male and female speakers are on the whole not conditioned by place of articulation (with the possible exception of the velar place).

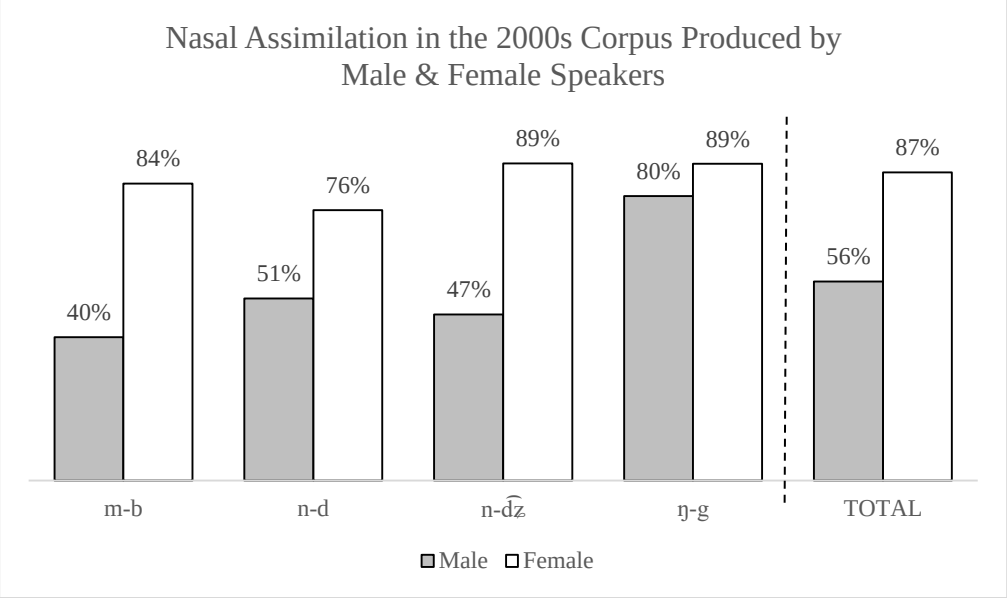


Figure 4.3: The variants with nasal assimilation are displayed by place of articulation in the x-axis. The percentages of nasal assimilation produced by twelve male speakers are displayed by the grey bars, and the percentages produced by nine female speakers are exhibited by the white bars.

In terms of gender, the results in Figure 4.3 show notably different percentages of occurrence between the male and female speakers. Assimilation is more robustly produced by the female speakers than by the male speakers. It should be noted here that the percentage of variants with velar assimilation on the part of the male speakers (80%) is not very different from that of the female speakers (89%).

Among the female speakers, the assimilation ranges between 70% - 90% across places of articulation, while assimilation among male speakers ranges between 40% - 60% in bilabials [m-b], velars [n-d], and palatal [n-d͡ʒ]. In the velars, assimilation [ŋ-g-] is 80%. Tables B.1 and B.2 of Appendix B present more detailed of tokens produced by both male and female speakers.

Aside from the case of the velars, gender affects the patterns of variation found thus far. The female speakers produced less variation: the variants with assimilation were produced robustly across places of articulation, whereas the male speakers

produced more variation: the variants with assimilation were produced in the range between 40% and 60%.

The next key question to be addressed is, what conditions the more varied patterns of the nasal assimilation found among the male speakers. To account for this, we need to examine an additional non-linguistic factor, namely educational background, which is elaborated further in 4.5.

4.5. Results of the corpus - gender and education

The educational categories used in this chapter are same as the ones used in Chapters Two and Three (cf. 1.6.1). This section is divided into two main parts. First, 4.5.1 compares the results between female speakers of higher educational background and the results from female speakers of lower educational background. Second, the results from male speakers of higher educational background are compared with the results from male speakers of lower educational background in 4.5.2.

4.5.1. Female speakers and educational background

First, the percentage of the assimilated variant across speakers are presented in Figure 4.4 and the more detailed numbers of tokens are presented in Tables B.3 and B.4 of Appendix B. Altogether, the percentages of the variant with nasal assimilation and the variant with [ŋə-] make up 100%.

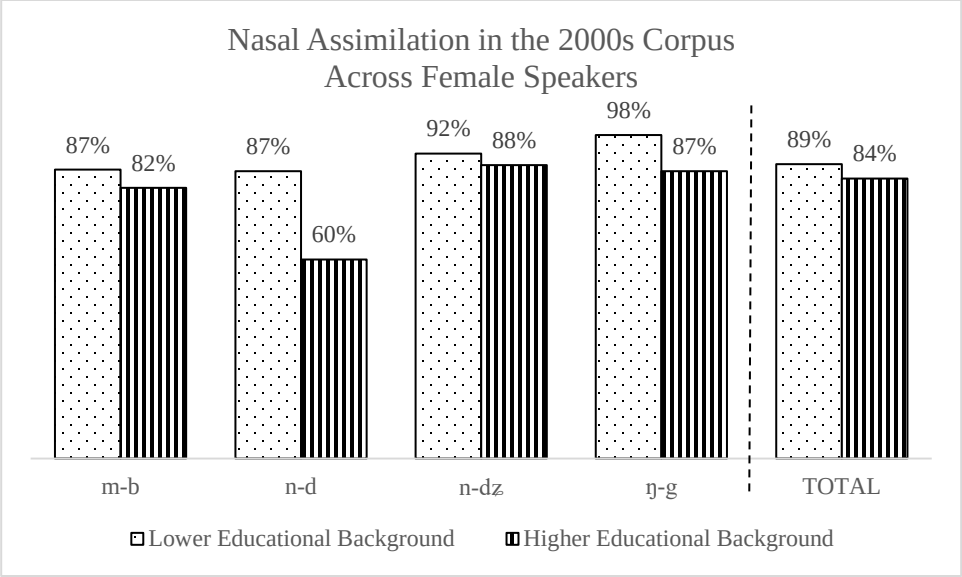


Figure 4.4: The x-axis displays the percentage of nasal assimilation by place of articulation. The bars with dots represent the female speakers of lower educational background, and the bars with stripes represent the female speakers of higher educational background.

There are four female speakers of higher educational background and five female speakers of lower educational background involved in this study. In general, we can observe that the occurrence of nasal assimilation by both female speakers of higher and lower educational backgrounds are very robust. They range between 60% and 98%. Moreover, we can also see that place of articulation does not affect the patterns of occurrence, except in the case of the velars, where assimilation is more robust than the other places of articulation and for alveolars for females with higher levels of education which is lower than expected. Interestingly, these robust patterns of assimilation among the female speakers of lower educational background are quite similar to the patterns of assimilation among female speakers of higher educational background. This suggests that the educational factor among the female speakers has little effect on the patterns of variation of the two nasal prefix variants. Nasal assimilation is produced more frequently than [ŋə-] variant across places of articulation, as our linguistic factor and across the educational categories as our non-

linguistic factor.

We might wonder whether or not these patterns of occurrence are dominated by certain speakers due to individual speaker differences. To assess this, the results by speakers are examined and exhibited in Figure 4.5.

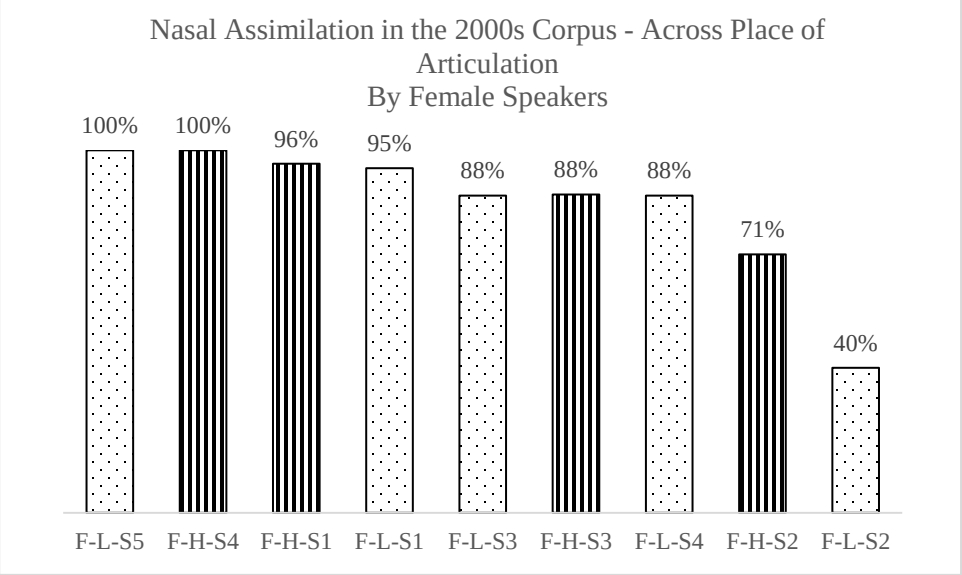


Figure 4.5: The x-axis lists the individual speakers, and the vertical bars display the percentages of assimilation by individual speakers. The white bars with dots represent female speakers of lower educational background and the bars with stripes represent female speakers of higher educational background.

In Figure 4.5, we can see that in general, the female speakers of both educational backgrounds produced nasal assimilation robustly, with the frequency above 71%, except speaker F-L-S2 who produced only 40% nasal assimilation. The speaker F-L-S2 lives in a neighborhood that is populated mostly by a Betawi population, and her results might be caused by her frequent interaction with her Betawi neighbors. We will come back to discuss the issue of Betawi influence in 4.8.

The overall results suggest that the patterns of variation presented in Figure 4.5 are not biased towards certain speakers, except for the case of speaker F-L-S2 whose patterns of usage is different.

Thus, based on the Figures 4.4 and 4.5, we have supporting evidence to show that place of articulation and educational category do not have a strong effect to the robust occurrence of the variant with nasal assimilation among female speakers. Let us now turn our attention to the results from male speakers, which are discussed in 4.5.2.

4.5.2. Male speakers and educational background

Seven male speakers of higher educational background and five speakers of lower educational background are included in this study. The percentages of the variant with nasal assimilation by place of articulation are presented in Figure 4.6, and the more detailed numbers of tokens are provided in Tables B.5 and B.6 of Appendix B.

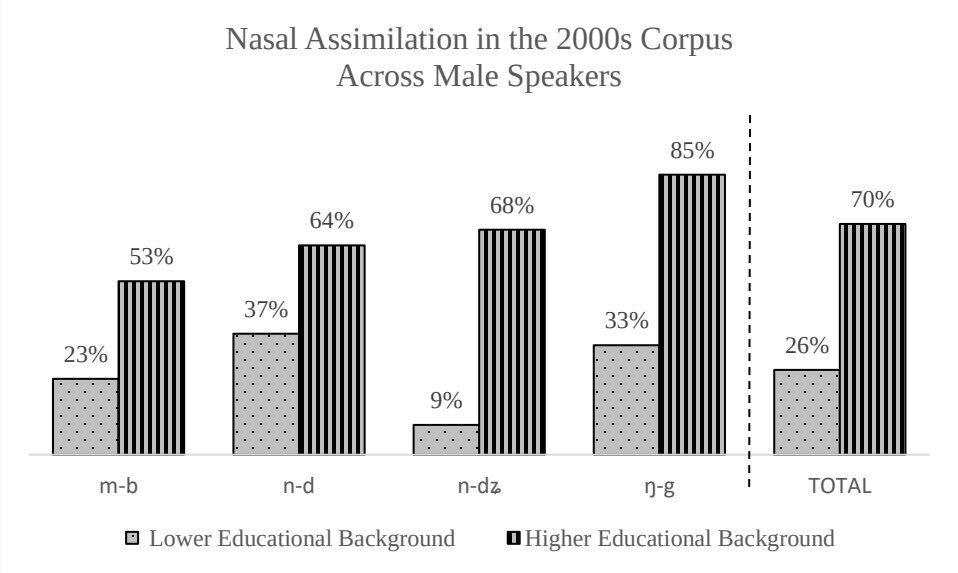


Figure 4.6: The x-axis presents the realization of assimilation. The percentages of assimilation produced by five male speakers of lower educational background are displayed in the bars with dots, and the percentages of assimilation produced by seven male speakers of higher educational background are displayed in the bars with stripes.

Figure 4.6 shows that the results from the male speakers of lower educational background are different from the results of those with higher educational background. The occurrence of assimilation among male speakers of higher educational

background is always higher than the occurrence of assimilation among the male speakers of lower educational background, and this happens across all places of articulation.[39] The results from the male speakers in Figure 4.6 show results different from those of the female speakers discussed in previous sections. For the female speakers, educational background made little difference in the percentage of occurrences of the variant of nasal assimilation, whereas, for the males, educational attainment is clearly a factor in the choice of this variant.

Again, the occurrence of the variant with nasal assimilation is not systematically conditioned by place of articulation. Across the place of articulation, the variant with nasal assimilation is always higher than the variant with [ŋə-]. These results are similar to the results from the female speakers of both educational categories, in which place of articulation does not, on the whole, affect the patterns of variation. However, non-linguistic factor, namely educational category does affect patterns of variation of the variant with nasal assimilation.

To assure that the results in Figure 4.6 are not biased towards certain speakers, let us now observe the occurrence of the variant with nasal assimilation by speakers in Figure 4.7.

[39] The difference between 53% for labials and 85% for velars among male speakers of higher educational background might be meaningful but cannot be fully assessed with our unbalanced dataset.

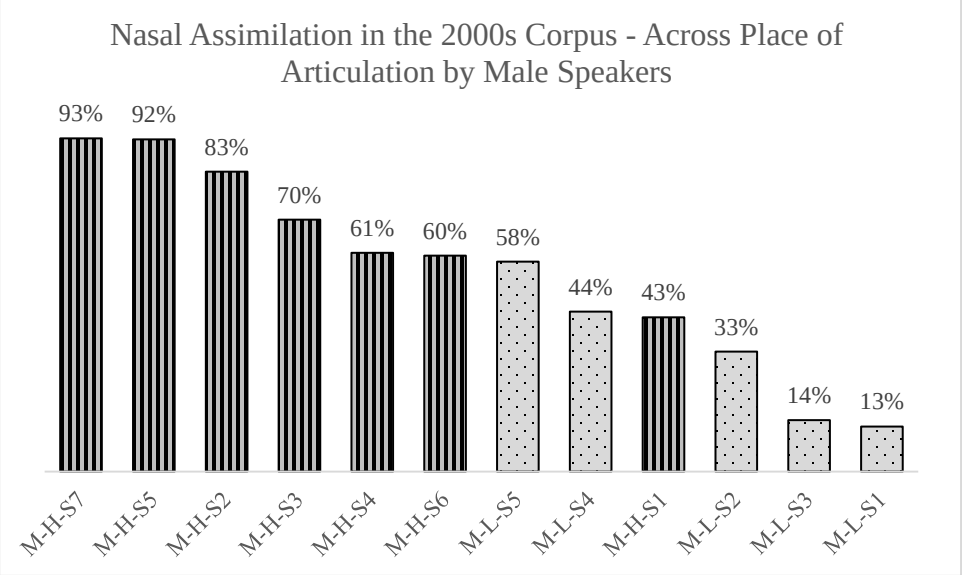


Figure 4.7: Nasal assimilation produced by male speakers in the 2000s corpus. The x-axis lists the individual speaker. The bars with dots present the percentages of nasal assimilation produced by male speakers of lower educational background, and the bars with stripes present the percentages of nasal assimilation produced by male speakers of higher educational background.

Figure 4.7 shows the occurrence of assimilation by twelve male speakers. We can see clearly in Figure 4.7 that the male speakers of higher educational background produced the variant with nasal assimilation for the most part at a rate greater than 50%, except for speaker M-H-S1 who chose the variant with nasal assimilation only 43% of the time, (i.e., 57% of the variants with [ŋə-]). On the other hand, the male speakers of lower educational background, in general, produced more limited occurrences of assimilation. It should be noted here that M-H-S1's parents are both Sundanese, and he also lived with his grandparents who are Sundanese. His higher occurrences of the variant with [ŋə-] might be also conditioned by his exposure to Sundanese that has [ŋa-] that is cognate with Betawi [ŋə-]. The Sundanese influence will be furthered discussed in 4.8.

The results presented in Figure 4.7 show that the results described in Figure 4.6 are not biased towards some speakers but indeed shows that the majority of speakers of higher educational background produce a higher percentage of the variant with

nasal assimilation, while the speakers of lower educational background show a lower percentage of the variant with nasal assimilation. In fact, female speakers of all categories (except for F-L-S2) produced a substantially higher percentage of the variant with assimilation than the male speakers of all categories.

These indicate that the occurrence of nasal assimilation produced by the male speakers of higher education background are closer to the occurrence of nasal assimilation produced by the female speakers, whereas the male speakers of lower educational background show results that are different in that they produce much fewer variants with nasal assimilation than the male speakers of higher educational background.

To sum up, the results from the four group of speakers suggest that the linguistic factors, either lexical or dependent on place of articulation do not determine the patterns of variation (though some effects of place are observed). There are differences based on gender. The results also show that among the female speakers, the factor of education does not condition the patterns of variation, while among male speakers, education appears to be a factor in choosing the variant with nasal assimilation.

To look more systematically at the patterns of variation and to test whether the results hold up in a more balanced dataset, a production task was conducted, presented in 4.6.

4.6. Production task

The report of the production task is divided into three main parts. First, the methodology used in the production task is elaborated in 4.6.1, then the results from production task that was carried out in Experiment 1 (Kurniawan, 2015) are discussed in 4.6.2, and Experiment 2 in this current study is discussed in 4.6.3.

Based on the results from the corpus study, the hypothesis for the production task is that JI speakers produce the variants with nasal assimilation more frequently than the variants with [ŋə-]. The methodology used in this study is explained in the next section.

4.6.1. The methodology of the production task

The test items in the production task were designed as follows. Forty-eight words which begin with [b-, d-, d͡ʑ-, g-] were chosen for the test items. If these words are prefixed with the nasal prefix, they are predicted to surface as the variant with assimilation as in [m-b, n-d, ɲ-d͡ʑ, ŋ-g], or the variant with [ŋə-] as in [ŋə-b, ŋə-d, ŋə-d͡ʑ, ŋə-g].

Each word is embedded in two different sentences. There is a total of ninety-six test sentences recorded by a male speaker. The participants listen to the test sentences in the passive voice construction and afterward, they produce active sentences item by item. In Indonesian, passive voice is indicated by a verbal prefix *di-* as illustrated in (11) and (12). They are asked to produce the active voice, which is indicated by the nasal prefix or [ŋə-] form. The examples in (11) and (12) display the test word *dibalikin* 'was returned' that is embedded in two different test sentences:[40]

(11) Subject hears:

Uang	itu	udah	*di-balik-in*	Toni
money	that	already	Pass-return-Caus[41]	Toni

'That money was returned by Toni.'

Expected response:
Toni udah *m-balikin/nge-balikin* uang itu.
'Toni has returned the money.'

[40] See Appendix C for complete list of test sentences.
[41] Pass: passive, Caus: causative; *-in* can also function as a benefactive marker.

(12) Subject hears:

Buku	itu	udah	di-balik-in	Jaya	ke	perpustakaan
Book	that	already	Pass-return-Caus	Jaya	to	library

'That book was returned by Jaya to the library.'

Expected Response:
Jaya udah *m-balikin/nge-balikin* buku itu ke perpustakaan.
'Jaya has returned the book to the library.'

The sentences and their topics are composed in a colloquial style and everyday situations to avoid a response of the SI variant. The JI benefactive/causative marker *–in* is used (rather than the SI causative/benefactive markers *–i* and *–kan*) and also informal *udah* 'already' (rather than SI form *sudah*). The participants are also not expected to respond in bare verbs. Before they respond to the test items, they listen to example sentences that show how to respond with the active prefix. In these examples, the participants listen to a passive verb (embedded in a sentence) that have either /p-/, /t-/, or /k-/ initial roots, such as [di-pulaŋin] 'was sent home'. The participants then listen to a response word [m-ulaŋin] 'sent home', which is also embedded in a sentence. It should be noted that there is no variation in the realization of the /p-, t-, k-/ initial roots.

The order of the ninety-six test sentences is randomized. Distracters which consist of words that begin with [p-], [t-] and [k-] are placed in between every six test items to avoid having subjects produce biased responses with only one variant. The participants' voices are recorded using Edirol by Roland type R-09HR, 24 bit 96KHZ Wave/MP3 recorder. The methods explained in this section are applied to both results discussed in Experiment 1 with eight speakers in 4.7.2, and Experiment 2 with twenty speakers in 4.7.3. I now first present the results from Experiment 1.

4.6.2. Results of Experiment 1

There are a total of eight subjects, three male and five female participants. They were Cornell University graduate students, their spouses or faculty. The data collection was done in their homes or offices in Ithaca, New York. The participants ranged between twenty-five and forty-five years of age. All of them are educated native speakers of JI. The data collection was done in 2014.[42] The results are presented in Figure 4.8.

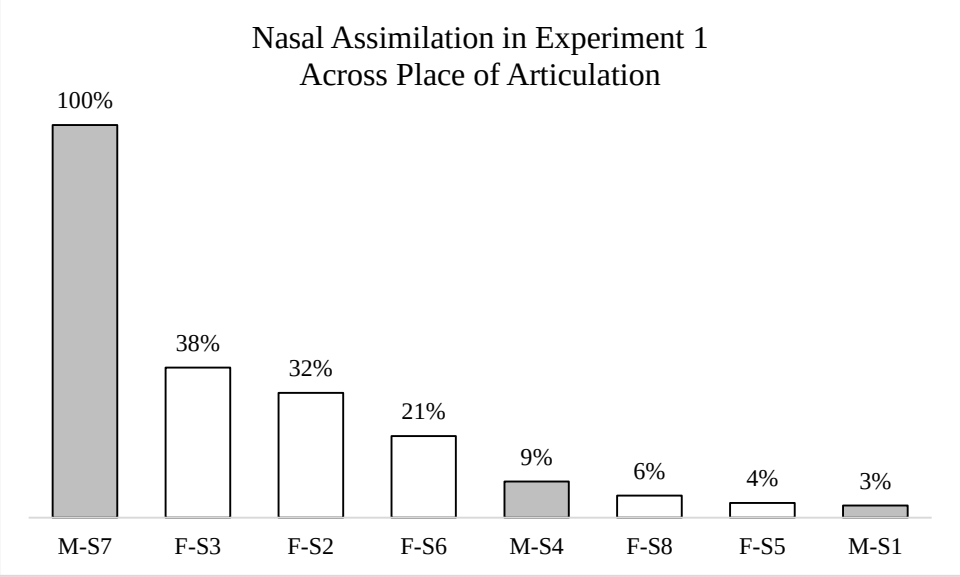


Figure 4.8: Nasal assimilation in Experiment 1 across the place of articulation. The x-axis lists the individual speaker. The grey bars present the percentages of assimilation produced by male speakers, and the white bars represent female speakers.

There are three male speakers and six female speakers whose results are displayed in Figure 4.8. The percentages presented in Figure 4.8 are only percentages of occurrences of the variant with nasal assimilation. The more detailed results of this experiment are provided in Table B.7 of Appendix B.

[42] An earlier version of this study can found in AFLA 21 proceedings (Kurniawan, 2015).

Unlike the corpus study, we can see immediately that the assimilated variant in the production task is produced in limited numbers, except for male speakers M-S7.[43] Among the other seven speakers above, the percentages are less than 40%. The relatively small use of assimilated forms and the very low amount of variation for four participants (3%-9%) might not be representative due to the limited number of participants. Furthermore, the participants' educational background is skewed. They were all of higher educational background. It is also important to examine if there are other speakers of JI than M-S7 who show 100% production of the variant with nasal assimilation. Furthermore, there is no clear gender difference between female and male speakers in the results of Experiment 1.

For these reasons, the experiment was further extended to a larger number of participants that have better balanced for gender and educational background all recorded in Jakarta, Indonesia and the results are presented in 4.6.3.

4.6.3. Results of Experiment 2

There is a total of twenty-two participants in this study. They consist of five female speakers of lower educational background, six female speakers of higher educational backgrounds, five male speakers of lower educational background, and six male speakers of higher educational background. The data collection was carried out in Jakarta, Indonesia, in the summers of 2015 and 2016. The overall results can be observed in Figure 4.9 below.

[43] It is still unclear what conditions 100% of the variant with assimilation produced by M-S7. He has Javanese background, but other speakers with Javanese background do not show similar results as he does.

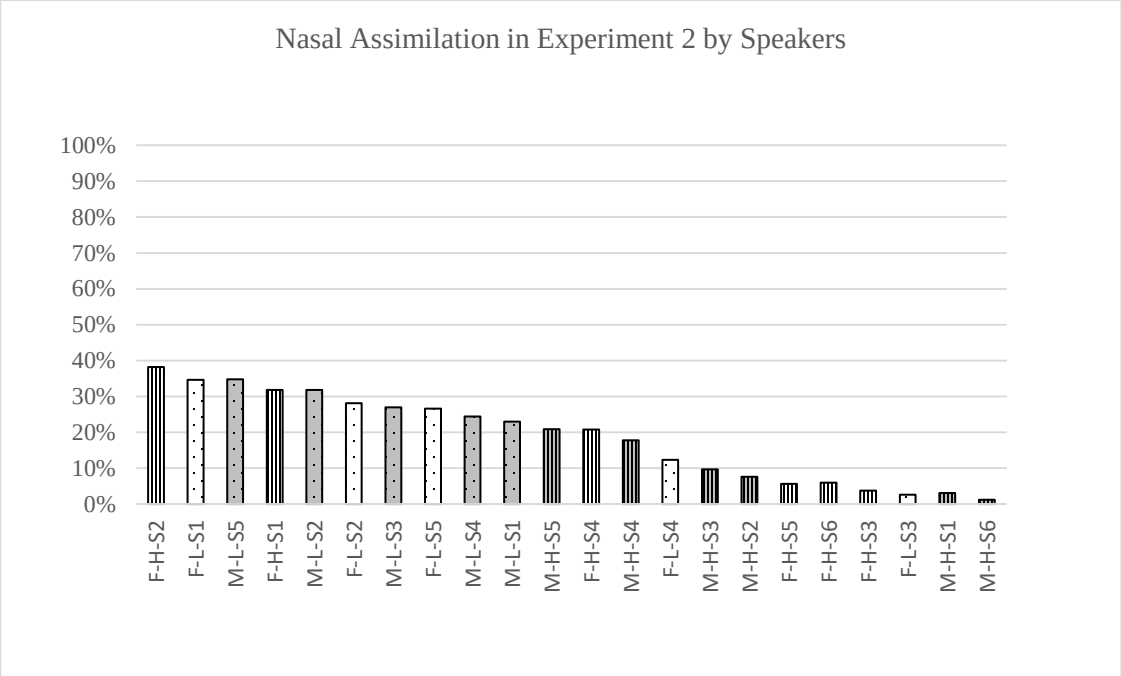


Figure 4.9: The x-axis lists the individual speakers. The percentages of nasal assimilation produced by the male speakers of lower educational background are presented in grey bars with dots. The grey bars with stripes represent the male speakers of higher educational background. The white bars with dots represent the female speakers of lower educational background. The white bars with stripes represent the female speakers of higher educational background.

Immediately, we can observe that the results in Figure 4.9 show similarity to the results in Figure 4.8. In Figure 4.9, all speakers produced variants with nasal assimilation less than 40% of the time, regardless of their gender and educational background. Additionally, none of these speakers produced 100% of the nasal assimilation, as was produced by M-S7 in the first study.

To consider whether gender and educational background affect the results in Figure 4.9, the results in the boxplots are presented in Figure 4.10.

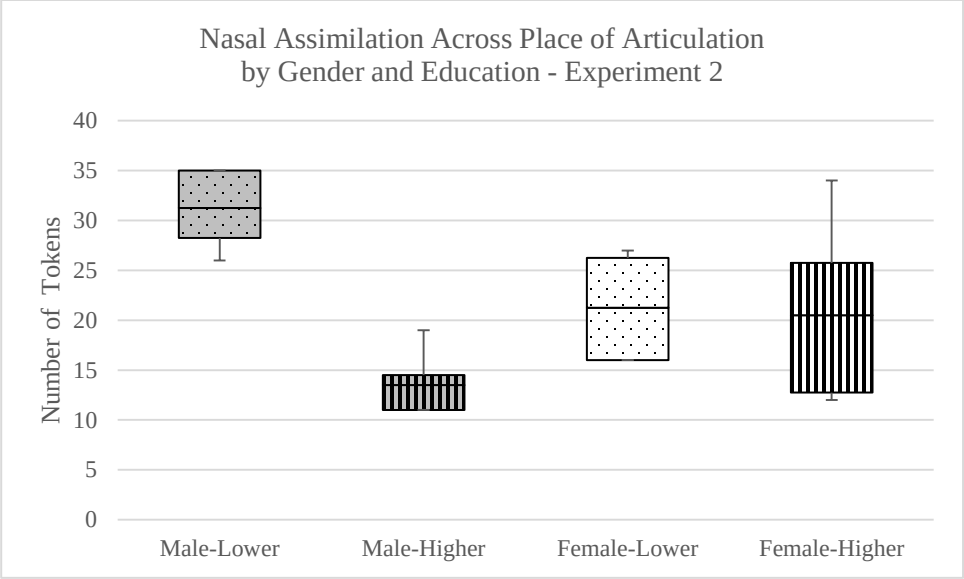


Figure 4.10: Nasal assimilation by gender and educational background in Experiment 2. The x-axis lists the four social categories.

The vertical axis represents the number of tokens with nasal assimilation produced in the experiment, and the box plots show the range of variants with nasal assimilation. Each box informs us about the average number of token produced and their outliers, and also minimum and maximum numbers of tokens produced. The numbers on which Figure 4.10 is based are given in Table B.8 of Appendix B.

We can see that the occurrence of the variants with nasal assimilation by female speakers of both educational categories are almost equally distributed. Interestingly, the male speakers of lower educational category show the highest occurrence of variants with nasal assimilation among the other social categories. Additionally, the results from the production task show that the variants with [ŋə-] are produced more frequently than those with assimilation, regardless of participants' social categories.

Up until now, the results from both experiments are not in accordance with the hypothesis of the experiment that JI speakers produce the variants with nasal assimilation more frequently than the variants with [ŋə-]. The results from both

experiments show the opposite results from those obtained from the corpus study.

Thus far, we have learned that the corpus study informs us more about patterns of nasal assimilation variation that are conditioned by social factors than the experiment has. This difference has implications for how we study the effect of social variable and highlights the fact that naturalistic data is crucial. These results are from the corpus of adult speakers of the 2000s generation. We now turn to the 1970s corpus and the pre-adolescent corpus to observe how the comparison between generations could contribute to our understanding of the development of JI.

4.7. Cross-generational comparison

This section is divided into two parts: 4.7.1 discusses the results of the 1970s corpus, and 4.7.2 presents the results of the pre-adolescent speakers in the 2000s corpus.

4.7.1. Corpus Study – the 1970s

The corpus used in this chapter is the same as the one used in Chapter Two. The data collection was conducted by Wallace (1976). Compared to the results from adult speakers we have in the previous section, the data from the 1970s are much more limited. Although the results are more limited, they still show interesting and suggestive results that may inform us about the patterns of variation of the nasal prefix in the 1970s.

First, the four forms of variation that include the variants with bare verbs, nasal assimilation, [ŋə-], and [məN-] are reported. Then, the results are divided based on speakers' gender to see if the patterns of variation are conditioned by the factor of gender. Finally, the results are presented based on the educational factor that might intersect with the speakers' gender as we have seen in the adult speakers from the 2000s.

The overall results are not organized by place of articulation because the data are limited and we did not see a correlation between place of articulation and choice of variant for speakers from the 2000s corpus. The results are presented based on the four forms of variation, as displayed in Figure 4.11 below.

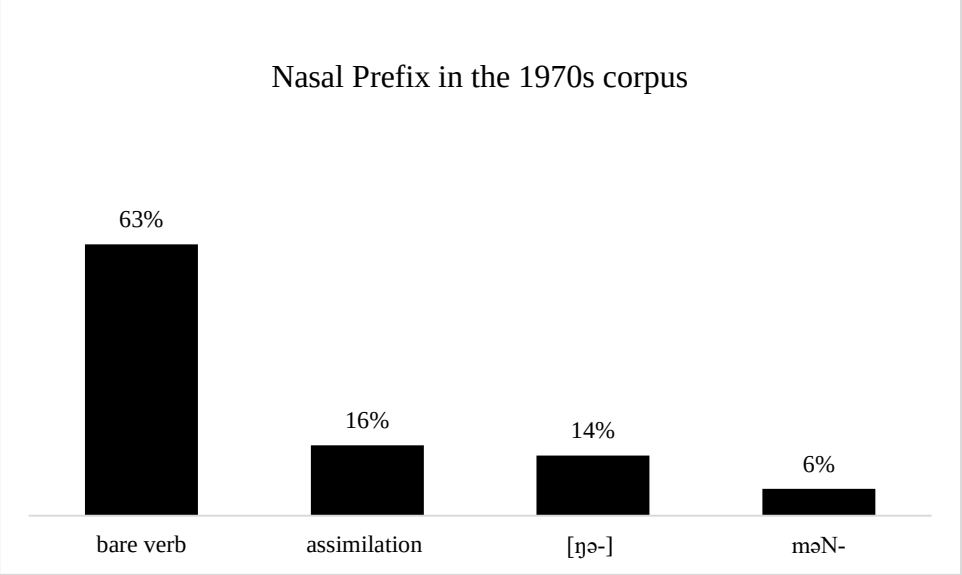


Figure 4.11: Four variants of nasal prefix produced in the 1970s.

In Figure 4.11, with a total of 128 relevant tokens, the variant with bare verbs have a much higher percentage. It is followed by the variants with assimilation, [ŋə-], and then [məN-]. The more detailed results are provided in Table B.9 of Appendix B. These results are quite similar to the results from the 2000s corpus, where the variant consisting of the base alone with no surface affix has the highest percentage, followed by the variant with nasal assimilation, then [ŋə-], and then [məN-], as shown in Figure 4.1 above.

Again, the majority of variants are bare verbs. Considering that the corpus was collected in colloquial settings, it is interesting to find that the standard variant with [məN-] is produced in the corpus as well, even though the percentage is low.

To see if the patterns of use of these four variants are different between male and female speakers, let us now turn to the Figure 4.12 where the results are divided by gender categories.

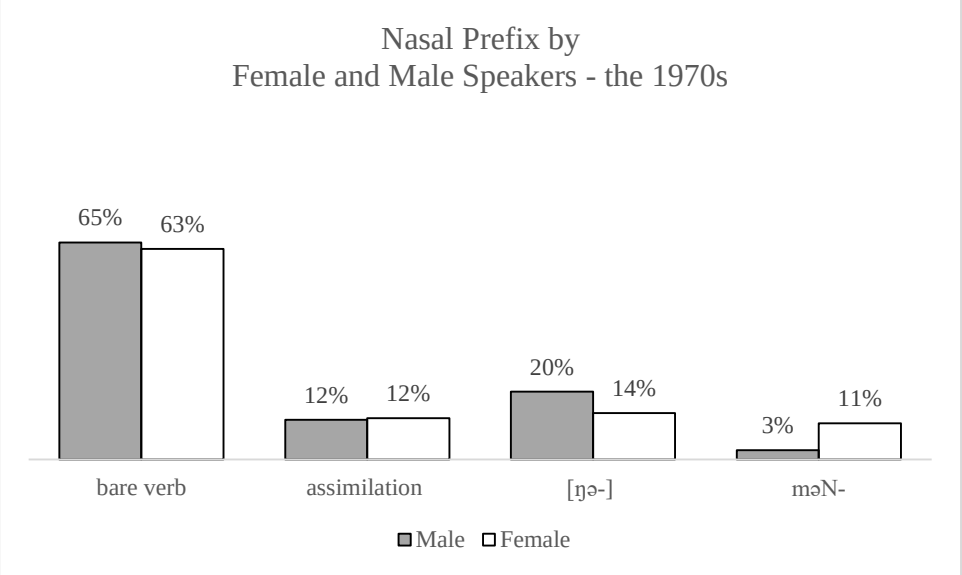


Figure 4.12: Four variants of nasal prefix produced by speakers in the 1970s corpus. The grey bars represent male speakers, and the white bars displays represent female speakers.

There is a total of thirteen male and eight female speakers whose speech is examined. In Figure 4.12, it appears that the percentages of the variant with bare verbs and percentages of the variant with nasal assimilation produced by male and female speakers are very similar. The percentage of variants with [ŋə-] produced by the male speakers is slightly higher than that of female speakers. The female speakers produce a higher percentage of variants with [məN-] than the male speakers. As shown in the previous section and other studies, female speakers often seem to produce more standard variants than male speakers.

Another point we should consider is that both male and female speakers produce the variant with [ŋə-] slightly more frequent than the variant with

assimilation. The general trend is the opposite of the results we have from the adult speakers of the 2000s corpus. Since the difference is small and the number of tokens is also small, it might not be a meaningful difference.

From the corpus study in the previous section, we learned that the occurrence of the variant with assimilation and the variant with [ŋə-] are conditioned by gender and educational factors. For this reason, the educational factor is also considered even though the amount of data is limited. Following the analysis in the 2000s corpus, only the results from the variant with assimilation and the variant with [ŋə-] are analyzed and presented in Figure 4.13.

Figure 4.13 shows the percentages of choice of the variant with nasal assimilation from the 1970s corpus by gender and education.

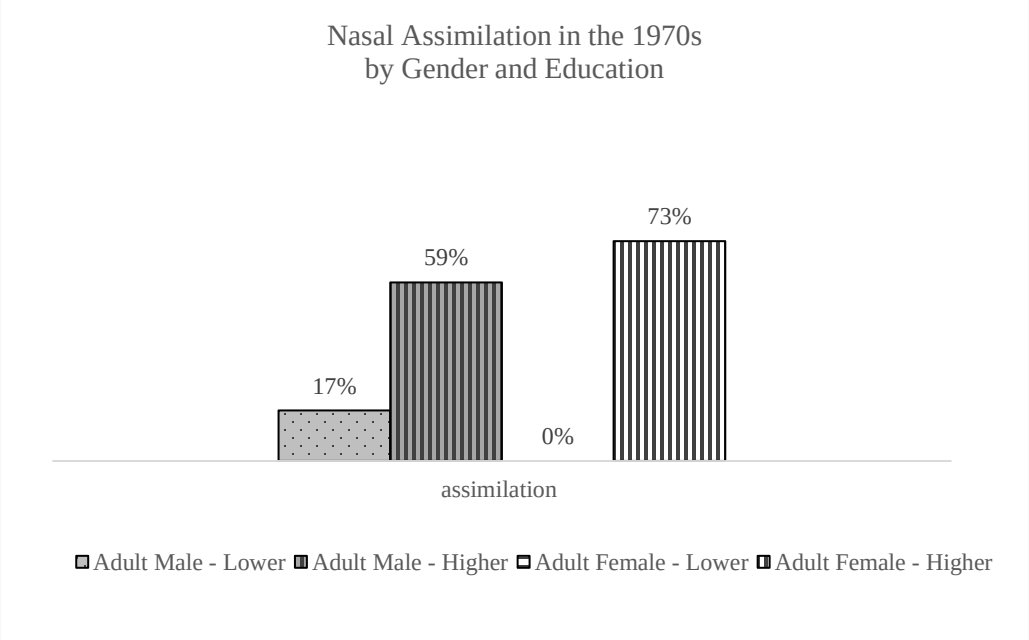


Figure 4.13: The grey bar with dots represent the male speakers of lower educational background. The male speakers of higher educational background are represented by the grey bar with stripes. The white bars with dots represent the female speakers of lower educational background (0%), and the white bar with stripes represent the female speakers of higher educational background.

There are seven male speakers of lower educational background, and six male speakers of higher educational background whose utterances are investigated. Additionally, there are six female speakers of lower educational background, and two female speakers of higher educational background whose speech is examined in this study.

The results in Figure 4.13 show that the male and female speakers of higher educational background produced more variants with assimilation than variants with [ŋə-]. On the other hand, the male and female speakers of lower educational background produced far fewer variants with assimilation than variants with [ŋə-], that is, we see an effect of education but not gender. The higher occurrence of variants with [ŋə-]— i.e., the lower percentage of variants with assimilation, among the speakers of lower educational background may provide evidence that traces of Betawi are shown in this group. Wallace (1976:138) mentioned that his speakers of lower socio-economic group indeed were more closely related to Betawi than the higher ones were. We should also recall from our discussion in Chapter Two that in the 1970s, the speakers of lower educational background produced a much higher percentage of the variant with final vowel [-e], the Betawi forms.

To observe how the nasal prefix is produced by the younger generation of JI speakers, specifically pre-adolescents, let us now discuss the results in 4.7.2

4.7.2. Corpus study - pre-adolescent females

In this section, only the results from female pre-adolescent speakers are presented since the data from male speakers are very limited. There are four pre-adolescent speakers whose utterances are examined. They consist of two speakers whose parents are of lower educational background and two speakers whose parents are of higher educational background. The corpus used is the same as the one used in examining the

adult speakers of the 2000s. Therefore, these pre-adolescent speakers can be considered the generation of the children of the adult speakers in the 2000s corpus.

Since we are not able to compare gender difference, the results of the four variants produced by the pre-adolescent female speakers are directly divided into two educational categories. They are presented in Figure 4.14 and Table 4.4.

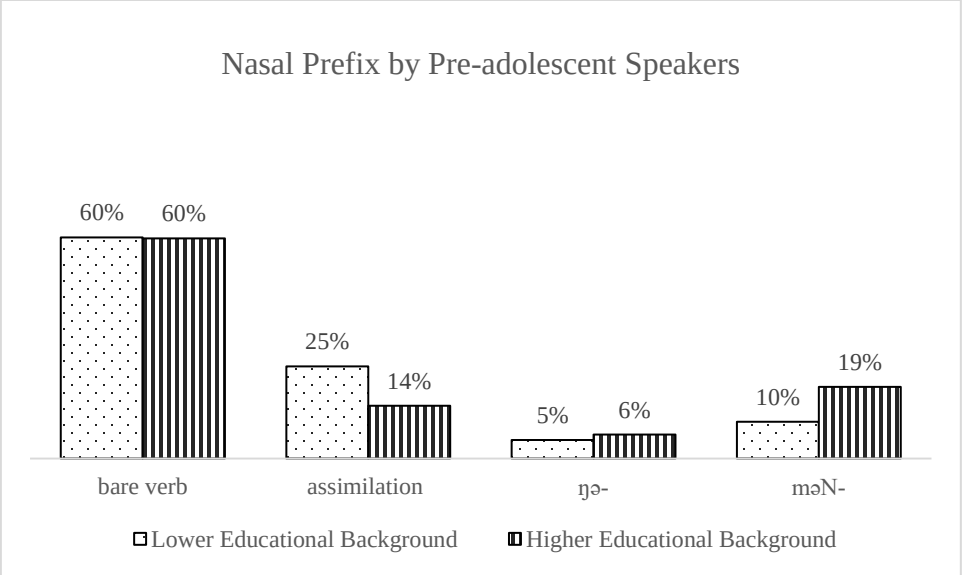


Figure 4.14: Nasal prefix produced by pre-adolescent speakers in the 2000s corpus. The x-axis lists the four variants. The bars with dots presents the percentages of occurrences from speakers of lower educational background. The bars with stripes the percentages from speakers of higher educational background.

Table 4.4: Nasal prefix produced by pre-adolescent speakers in the 2000s corpus.

	bare verb	assimilation	[ŋə-]	məN-	Total
Lower Educational Background	12	5	1	2	20
Higher Educational Background	46	11	5	15	77
Total	58	16	6	17	97

Although the number of speakers is limited and the number of tokens is small, the results in Figure 4.14 suggest some interesting differences of choice of the variant with the nasal prefix. The results in Figure 4.14 show almost no difference between speakers with parents in both educational categories. The percentage of bare verbs are

exactly the same. Similarly, the variant with [ŋə-] also show almost exactly the same percentages. We found slightly different results in the choice of variants with assimilation and [məN-]. The speakers with parents of higher educational background produced less assimilation than speakers with parents of lower educational background. This does not accord with the results from adult speakers where variants with nasal assimilation are produced more frequently by speakers of higher educational background than by the lower ones.

The children of speakers of higher educational background produce a higher percentage of standard variant [məN-] than the children of speakers of lower educational background. Furthermore, the results from adult speakers in the 2000s corpus show very low percentages of variants with [məN-]. The higher percentage of variants with [məN-] is most probably an effect from formal education at school, but not from parents' input.

The percentage of bare verbs is for all intents and purposes the same through all social groups and both genders, and the bare verbs have been removed from the count, as explained in 4.3.1. Further, the occurrences of variants with [məN-] are considered to be code shifts, and they too have been removed. What is shown in the results is only the percentage of variants with nasal assimilation as compared to [ŋə-], as presented in Figure 4.15 below.

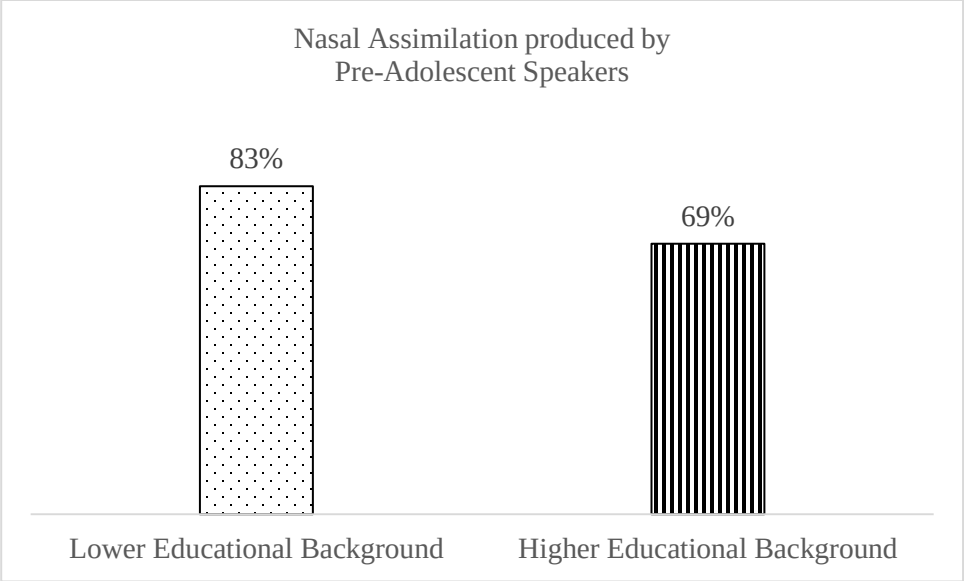


Figure 4.15: Nasal assimilation produced by pre-adolescent speakers in the 2000s corpus.

Figure 4.15, shows that the pre-adolescent speakers whose parents are of lower educational attainment produce a higher percentage of the variants with nasal assimilation than the pre-adolescent speakers whose parents are of lower educational attainment. These results show that the general trend goes in the opposite direction from that of the adult speakers of the 2000s corpus. It suggests that speakers' educational categories condition the patterns of variation among the adult speakers but not with the younger speakers. It should be noted that since the data from pre-adolescent speakers are limited, the difference shown in Figure 4.15 might not be meaningful.

Let us now discuss and conclude how the results so far can contribute to our understanding of the development of JI.

4.8. Discussion and conclusion

In this section, the first issue addressed is the results from the variants with [məN-] and bare verbs. After that, cross-generational results comparison is discussed. Finally,

a summary of the findings and their implication to the development of JI is presented.

Let us now first address the issue of SI variant [məN-]. Although my study is initially intended to observe specifically the patterns of variants with nasal assimilation and [ŋə-], the results reveal something that is unexpected. It turned out, although small in numbers, the SI variant with [məN-] was cross-generationally produced in colloquial settings. This suggests that the influence of SI is not only on the formal register but also has been adopted into colloquial settings by JI speakers since the 1970s. This could be considered to be style shifting.

Considering bare stems, Hidajat (2010) found that younger children of JI produced a high occurrence of bare verbs. Cole et al. (2006) also find that bare verbs are produced robustly by JI adult speakers. Providing further evidence from the 1970s corpus and pre-adolescence, this current study finds that bare verbs in the active voice are in fact produced robustly by three generation of speakers. It confirms that indeed bare verbs are the most widely used variant among the four variants discussed in this study. This is an interesting area for further study.

To discuss the patterns of variants with nasal assimilation and variants with [ŋə-], cross-generational results of occurrences of the variants with nasal assimilation are compared in two figures. Figure 4.16 provides the results from male speakers, and Figure 4.17 presents the results from female speakers.

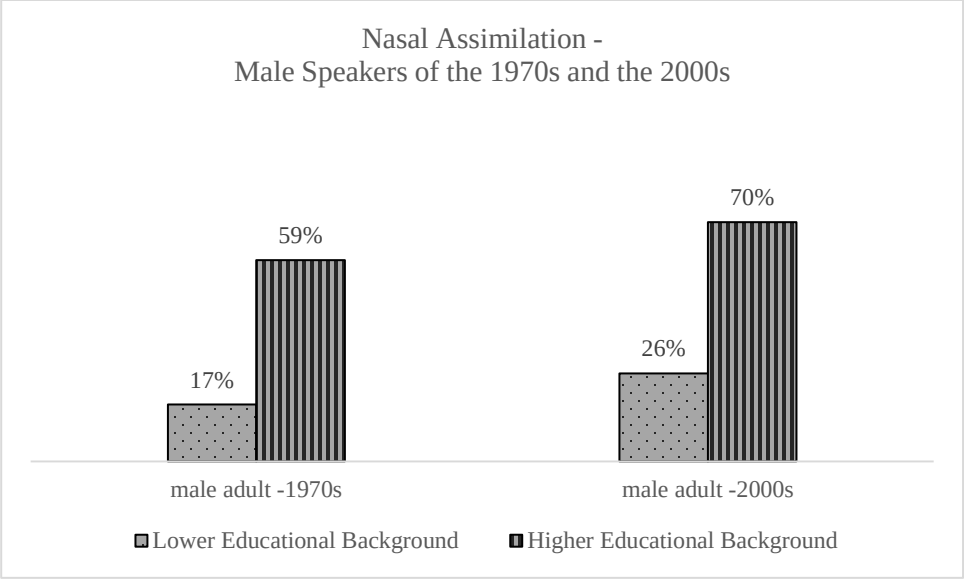


Figure 4.16: Nasal assimilation produced by male adult speakers in the 1970s corpus and the 2000s corpus. The bars with dots present the percentages of occurrences from speakers of lower educational background. The bars with stripes present the percentages from speakers of higher educational background.

Figure 4.16 shows the results from male speakers of the 1970s and the 2000s. In this figure, we can observe that the results from the two generation of speakers show similar patterns. In both generations, the percentages of the variant with nasal assimilation produced by male speakers of lower educational background are lower than male speakers of higher educational background.

Let us now turn to cross-generational comparison among female speakers, as displayed in Figure 4.17.

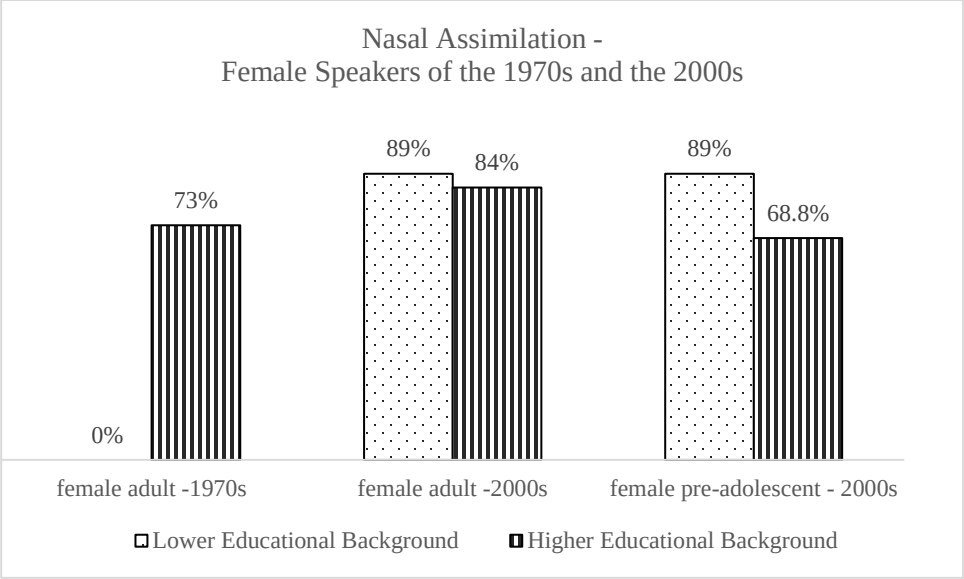


Figure 4.17: Nasal assimilation produced by female adult speakers in the 1970s corpus and the 2000s corpus, and pre-adolescent female speakers in the 2000s corpus. The bars with dots represent the speakers of lower educational background. The bars with stripes represent the speakers of higher educational background.

The results in Figure 4.17 show the percentages of variants with nasal assimilation produced by the female speakers of three generations divided into two educational categories. We can observe similar patterns between the adult and pre-adolescent speakers of the 2000s corpus, in which speakers of both educational categories produced higher percentages of assimilation.

Interestingly, the 1970s results among the female speakers of low educational attainment show absolutely no occurrences of the variant with nasal assimilation (the variant which predominates in the 2000s corpus), and the figures for the males of lower educational attainment show a low percentage (17%). On the other hand, the females in the 1970s corpus of higher educational attainment produced a high occurrence of variants with assimilation (73%), outstripping the educated males, whose data shows a slightly lower percentage of occurrence (59%).

Thus far, we have three groups of speakers who produced fewer variants with nasal assimilation, i.e., more variants with [ŋə-]. They are the female and male

speakers of lower educational background in the 1970s corpus and the male speakers of lower educational background in the 2000s corpus.

Sneddon (2006), as cited in Hidajat (2010), suggested that the high percentage of the variant with nasal assimilation in JI mostly occur among speakers with Javanese background. My study, however, shows that nasal assimilation is chosen not only by speakers with Javanese background but also by JI speakers with no ethnic or ancestry relation to Javanese.

We should recall from our discussion in 4.2 that nasal assimilation in JI is cognate with Javanese form. The variant with [ŋə-] might came from Sundanese or Bangka Malay (Sd/BM). The absorption of nasal assimilation to Betawi most probably took place around the seventeenth century when Javanese as an ethnic group was first recorded in *Dagh-Register* (1673), as discussed by Castle (1967). Previous studies on Betawi, such as Muhadjir (1981) and Ikranagara (1980) mentioned that the variant with nasal assimilation (of Javanese origin) is used in variation with the variant with [ŋə-] (of Sd/BM origin). However, the current Javanese variant used by present-day JI speakers is not only an inheritance of the same variant that characterized Betawi – it was furthered and also continues to be furthered by current Javanese influence.

JI speakers, especially those of higher educational background, use Javanese variant more frequently than Sd/BM variant. The choice of Javanese variant over Sd/BM variant by speakers of higher educational background is most probably caused by Javanese tradition (and language) that is often associated to the image of *priyayi* (royalty or nobility) class (see Zents, 2015:78 for a discussion related to the Javanese language and tradition). Moreover, Javanese occupy a prominent place in Jakarta society and have prestige, and their version of Indonesian heavily favors the assimilated variant. This is an assumption based on my personal observation and needs to be tested in another study by examining on-going Indonesian speech on the part of

prestigious speakers of Javanese ethnicity—especially, people born and raised in Jakarta but in families that had close connections to the Javanese homeland and who still used Javanese at home. The data suggest that the variant with nasal assimilation is a prestige form that it is associated with the Javanese, who predominate in the highest social echelons of Jakarta. Thus, the four observed variants have different sources and result from different influences. In the case of [məN-], it is influence from SI. In the case of the bare stem, this seems to be an increasing internal change in progress. Finally, increasing preference for nasal assimilation over [ŋə-] seems to reflect social prestige and influence from Javanese.

The case of the Javanese variant, i.e. the assimilated form, appears to be in accordance with what Labov (1966:160) found in the investigation of post-vocalic [r] in New York City, in which the higher the social status of the speakers, the more post-vocalic [r] they produce. He mentioned that [r] is a very sensitive prestige sociolinguistic variable that can be used to identify the stratified community in New York City. Similar to this, it seems that the Javanese variant produced in this study is used as a new prestige identity by the emerging linguistic community of Jakarta Indonesian speakers.

To summarize, we have shown that in the variation between the choice of nasal assimilation as opposed to [ŋə-] prefixation is at least partly conditioned by educational attainment and gender: in general, the variant with nasal assimilation has higher frequency among all groups. Further, females and people of higher educational lead—i.e., the choice of the variant with nasal assimilation has higher frequency among females than males and similarly, the choice of the variant with nasal assimilation has higher frequency among those of higher educational attainment than those of a lower attainment.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

This thesis investigates the development of Jakarta Indonesian (JI) using corpora based on three generations of naturalistic speech data to study variation in the realization of three (morpho-)phonological variables. The first study to do this, it demonstrates the importance of naturalistic speech corpora in examining the actual patterns of language use focusing on colloquial speech, which we know to be the locus of language change. By studying naturalistic colloquial speech, it contributes to our understanding of linguistic variation, contact, and change in progress. This study compares the patterns of use of the three (morpho-)phonological variables in the 2000s corpus (Gil et al., 2015) with the 1970s corpus (Wallace, 1976). These corpora show evidence of the changes that are taking place, their direction, and how they are adapted by speakers' gender, age, and educational categories represented in the corpora.

This chapter is divided into four parts. The first one provides a general summary of the findings in section 5.1. Then, section 5.2 discusses the implication of this study for the field of Indonesian linguistics. Section 5.3 elaborates on the implication of this study for a better understanding and model of studying variation and change in general. Finally, 5.4 offers directions for future research.

5.1. Summary of the findings

This study investigates the development of JI to offer an approach to the systematic study of language contact and change in a complex multilingual setting. Three variables were studied to see if patterns of variation in final [-a] ~ [-e] (Chapter Two), final [Ø] ~ [-h] ~ [-ʔ] (Chapter Three), and bare verbs ~ nasal assimilation ~ [ŋə-] ~ [məN-] (Chapter Four) show evidence of change in progress. In each case, the variables show a change in progress.

The findings from three variables investigated in Chapter Two, Three, and Four support the conclusion that JI is, in fact, an admixture of Betawi and SI, with a strong influence of Javanese, Sundanese, and Bangka Malay. The relationship between these varieties is identified in the patterns of variation that show a general trend towards increased use of the SI and Javanese variants. In the phonological variables, the high occurrences of word-final [-a] in Chapter Two and word-final [Ø] in Chapter Three show evidence of the strong influence of SI. In the morpho-phonological variable, the high occurrence of the variants with nasal assimilation ([mb-, nd-, nd͡ʑ-, ŋg-]), compared to the variant with [ŋə-], in active verbal prefix show evidence of the influence of Javanese.

In most cases, the patterns of variation observed in this study are not conditioned by linguistic factors but are conditioned by non-linguistic factors, namely speakers' gender and level of education. Although we do observe phrasal conditioning in Chapter Three, determining the occurrences of the variants. The use of SI influence in Chapters Two and Three despite the causal speech context is led by females and speakers of higher educational background. Similarly, the higher occurrences of Javanese forms observed in Chapter Four are found among females and speakers of higher educational background. The main findings are summarized in Figure 5.1, 5.2, and 5.3 below.

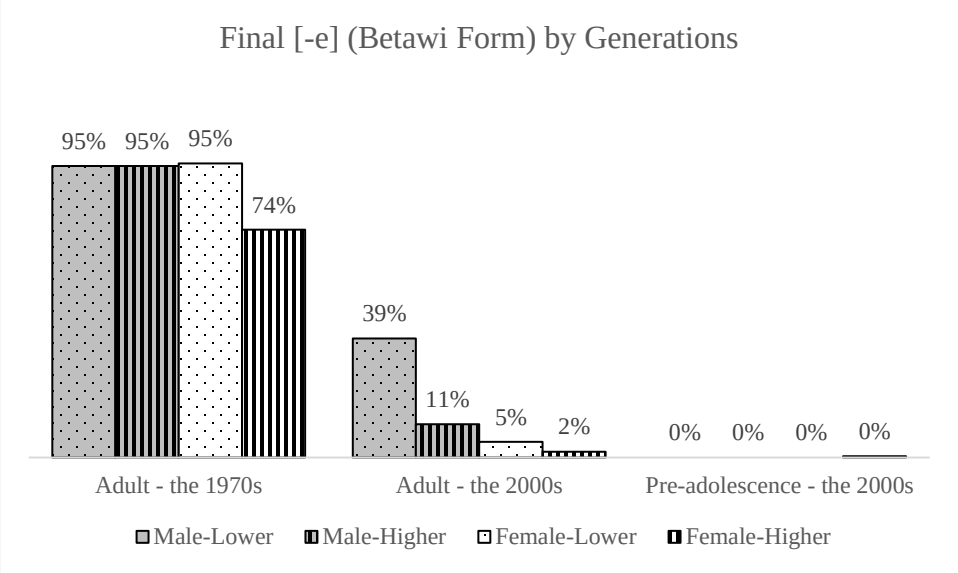


Figure 5.1. The grey bars with dots represent the percentages by male speakers of lower educational background, the grey bars with stripes display the percentages by male speakers of higher educational background, the white bars with dots show the percentages by female speakers of lower educational background, and the white bars with stripes exhibit the percentages by female speakers of higher educational background.

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First, let us consider the variants with final [a-] ~ [-e] investigated in Chapter Two. In this case, we can see clearly that the mixed use of final [-e] as Betawi variant and final [-a] as SI variant is an evidence of admixture of the two varieties.

As shown in Figure 5.1, the higher percentages of the variant with final [-e] (Betawi variant), i.e. the lower percentages of the variant with final [-a] (SI variant), produced by the speakers in the 1970s regardless of their gender and education, show that the SI influence on JI was not too pervasive at that time. In the 2000s corpus, JI speakers produce higher percentages of the variant with final [-a] (SI variant) which take place across genders, ages, and educational backgrounds. On the other hand, the variant with final [-e], as the more conservative variant from Betawi, has generally been left behind by the JI speakers in the 2000s corpus. Moreover, by the third generation (pre-adolescent) of speakers, the variant with final [-e] has almost no longer been produced. There is a sharp drop in the Betawi variant from the 1970s to

the 2000s– from between 95% and 74% to almost none (among the pre-adolescent speakers).

We should also note that the percentage of the variant with final [-e] produced by female speakers of higher educational attainment (74%) is lower than other groups of speakers in the 1970s. It appears that educated females were leading in the abandonment of the Betawi variant [-e]. Meanwhile, the percentage of the variant with final [-e] produced by male speakers of lower educational background (39%) is higher than the other groups of speakers in the 2000s.

Let us now consider the word-final [Ø] ~ [-h] ~ [-ʔ] variable in Figure 5.2 as investigated in chapter 3.

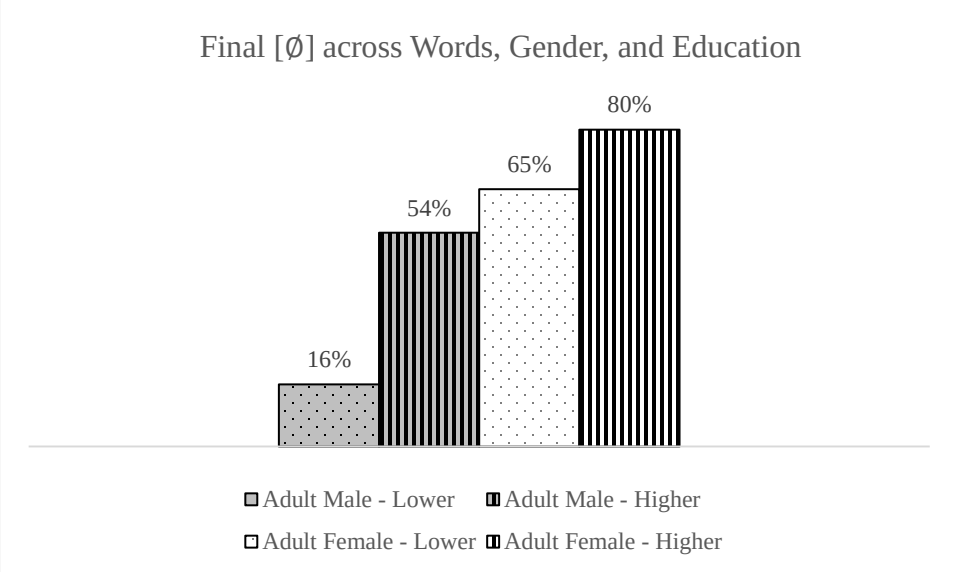

Figure 5.2. The grey bars with dots represent the percentages by male speakers of lower educational background, the grey bars with stripes display the percentages by male speakers of higher educational background, the white bars with dots show the percentages by female speakers of lower educational background, and the white bars with stripes exhibit the percentages by female speakers of higher educational background.

The speakers' gender and educational background influence the patterns of variation of these final [Ø] ~ [-h] ~ [-ʔ], as shown in Figure 5.2. The variants associated with Betawi and Sundanese are still alive in JI, but there is an overall

tendency in the realization of [Ø] ~ [-h] ~ [-ʔ] for the form that is associated with Betawi to be produced by the less educated males and females, whereas the SI variant (final [ø]) is produced more frequently by speakers from higher educational background. In terms of gender, female speakers produce higher percentages of SI variant than male speakers.

Now let us observe the active verbal prefix investigated in Chapter 4.

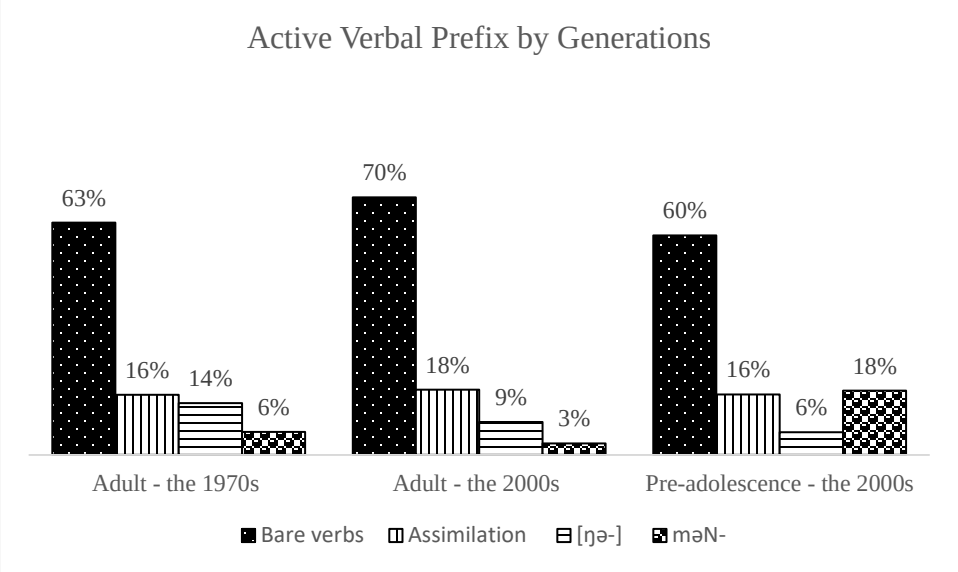

Figure 5.3. The percentages of occurrences of the variant with bare verbs are displayed by the black bar with dots, the percentages of the variant with nasal assimilation are presented by the white bars with horizontal stripes, the percentages of the variant with [ŋə-] are exhibited by the white bars with horizontal stripes, and the percentages of the variant with [məN-] are shown in the white bar with bubbles.

Figure 5.3 shows the occurrence of the SI variant [məN-] across generations. Among the adults, the occurrence of this form is minimal, and we have suggested that the occurrence of the SI variant is a matter of style-switching. It is interesting to note that among the children, there seems to be a substantial increase in [məN-] though firm conclusions cannot be drawn due to the very small amount of data. It may indicate that speakers of JI are beginning to adopt this SI form as a variant of the colloquial repertoire. Figure 5.3 also shows that the occurrences of the variant with

bare verbs are the highest among the four forms. However, the bare verbs variant occurs equally among all classes defined by education, gender, and all ages, so as concluded in Chapter Four, this form has no sociolinguistic meaning.

The results from the variant with nasal assimilation as compared to [ŋə-] variants for voiced stop initial roots are summarized in Figures 5.4 and 5.5.

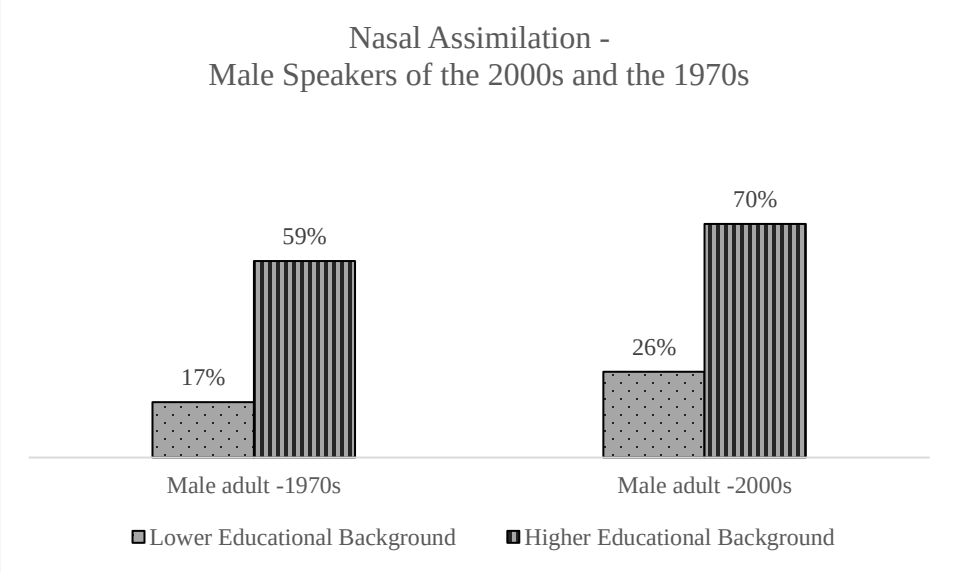

Figure 5.4. The grey bars with dots present the percentages of nasal assimilation produced by the male speakers of lower educational background. The male speakers of higher educational background are represented by the grey bars with stripes.

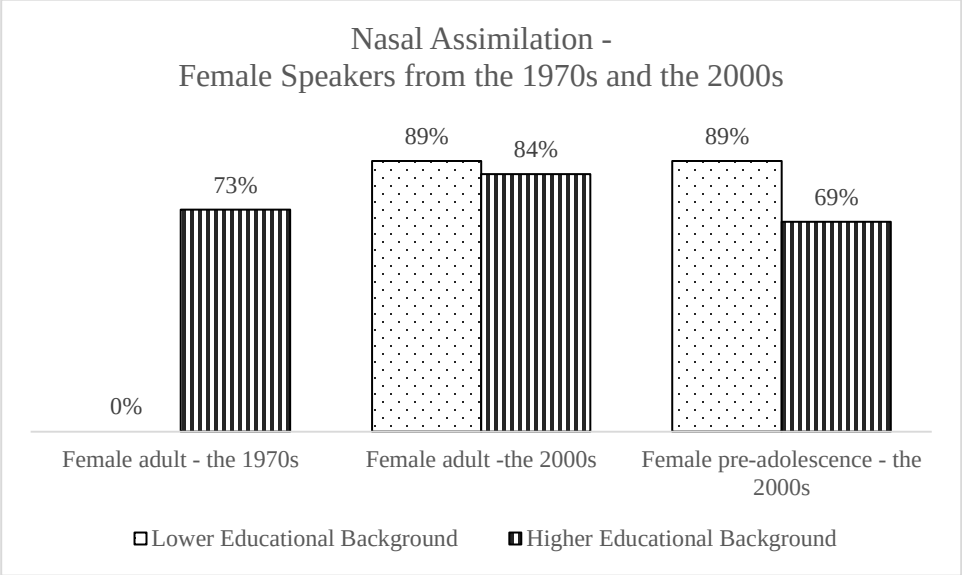

Figure 5.5. The white bar with dots shows the percentages of nasal assimilation produced by the female speakers of lower educational background, the white bar with stripes represent the female speakers of higher educational background.

Figure 5.3 shows that there is little change in the overall usage of the variants with nasal assimilation and [ŋə-]. However, when the figures are broken down by gender there is a significant difference between the male and the female speakers, as shown in Figures 5.4 and 5.5. The female speakers, both the educated and the ones of lesser education, show a similar percentage of [ŋə-] (except for the case of a single respondent, who was an outlier). Interestingly, the lower-class females, who produced no tokens with the nasal assimilation variant in the 1970s study, produced a very high percentage (89%) of this variant in the 2000s study and actually out-produced the educated females. On the other hand, the male speakers show a substantially large percentage of active forms with [ŋə-]. There was only a small decrease in the occurrence of this variant between the 1970s and 2000s. As explained in 4.8, this difference suggests that the form with nasal assimilation has a kind of prestige and is increasing in usage at the expense of [ŋə-] associated with Betawi speech. Or possibly this is a matter of "negative prestige", where the variant with [ŋə-] has acquired a

connotation of belonging to a masculine in-group.

To summarize, the results from Chapters Two, Three, and Four are listed in Table 5.1.

Table 5.1: Summary Table. A: adult, Pre-A: Pre-adolescence, M: only male speakers, (?): uncertain

	Variables								
	[-a] ~ [-e]			Ø ~ [-h] ~ [-ʔ]			Assimilation ~ [ŋə-]		
Generations	A-70s	A-2000s	PreA-2000s	A-70s	A-2000s	Pre-A-2000s	A-70s	A-2000s	Pre-A-2000s
Linguistic Conditioning	X	X	X	N/A	Phrase Boundary		X	X	X
Gender	X	X	X	N/A	√	X	√	√	X (?)
Education	X (?)	X (?)	X	N/A	√	X	√	√ (M)	X
Major Points	Abrupt Change: Betawi to SI			Moving towards SI, but highly determined by gender and educational background			• Moving towards Javanese form • Style-shifting between standard and colloquial forms		

Notably, we can see that the social factors that condition the variation are not the same for all variables. The results for the [-a] ~ [-e] variable are different cross-generationally but are not conditioned by gender and education, whereas the results for the [Ø] ~ [-h] ~ [-ʔ] variable are conditioned at least in part by gender and education. Finally, the results for the assimilation ~ [ŋə-] variable are not different cross-generationally and are conditioned at least in part by gender and education.

The important question now is how these findings may contribute to our understanding of the development of JI as a new emerging variety.

5.2. Implications for JI as an emerging variety

As noted in Chapter One, JI is considered a new emerging variety as an outcome of linguistic contact between Betawi and SI. The findings we have in Chapters Two and Three show the process of linguistic contact in which the forms originated in Betawi are used in variation with SI forms. At the beginning of its emergence, we can see that Betawi forms were used more than SI forms by the offspring of the first immigrants coming to Jakarta in and around independence in 1945 (the speakers from the 1970s corpus). Interestingly, the next generation of speakers (the speakers from the 2000s corpus) uses more SI forms than Betawi ones. The patterns of variation in the linguistic variables in Chapters Two and Three show a general trend of linguistic change in progress towards SI. The increased use of SI forms that takes place cross-generationally from the 1970s to the 2000s is parallel to the crucial period of national language policy that was efficiently implemented under President Soeharto's authoritarian regime between 1966 and 1998.

The high occurrence of the variant with nasal assimilation in Chapter Four suggests that besides SI, Javanese influence also plays a role in the development of JI. As pointed out in Chapter Four, the presence of the nasal assimilation variant is not new. Muhadjir (1981) mentioned that nasal assimilation is used in the variation with [ŋə-] in Betawi. However, the choice of the variant with nasal assimilation over the variant with [ŋə-] by JI speakers of higher educational background is not because this variant is associated with Betawi, but rather more likely to be due to Javanese influence, which may be seen as a prestige effect. We should recall from our discussion in 4.8 that the case of the Javanese variant (nasal assimilation) might be similar to what Labov found in New York City dialect study where post-vocalic [r] is used more frequently by speakers of a higher social class than those of a lower ones.

Although the occurrences are low, the use of SI [məN-] shows evidence of

style-shifting between colloquial and formal forms. It is interesting to see that JI speakers of higher educational background do not use SI form [məN-] at a higher rate, though there is a gender difference. We should also recall that bare verbs are produced robustly across generations and social categories. This suggests that the bare verbs are neutral forms whose occurrences are not conditioned by social factors.

Thus, the development of JI as a complex blend of Betawi and SI can be seen through SI influence in Chapters Two and Three, and Javanese influence in Chapter Four. This shows that JI is indeed a complex blend of Betawi as the more conservative variety and SI as the more innovative one with further influence from older variants originating in Bangka Malay or Sundanese and Javanese. An important question we should address now is how we can use the findings we have so far to understand more about studying language variation, contact, and change.

5.3. Implications for studying language variation, contact, change, and shift

As pointed out in 1.4, Ravinandrath (2015) noted that one major aspect that has been mostly missing in the study of language contact is the use of the naturalistic corpora from vernacular speech. This current study shows the importance of the naturalistic speech corpora in studying the emergence of a new variety, namely JI. The patterns of variation found in the naturalistic speech corpora from three generations of speakers enable us to learn more about how a new variety gradually emerged due to linguistic contact between varieties. In our case, the varieties in contact are formal H variety (SI) and vernacular L variety (Betawi), forming another vernacular L variety, namely JI. By systematically investigating colloquial speech (JI) corpora, we can achieve a comprehensive understanding of how a complex admixture, such as JI, can emerge through a process of linguistic contact.

As discussed in Chapter One, a common outcome of language contact is

language change. Labov (2010) stated that vernacular variety is the core area of studying linguistic change. In agreement with Labov, the current study shows that the patterns of variation in JI vernacular speech allow us to find out the direction of change in progress. The phonological variation in function words investigated in Chapters Two and Three shows that the changes lead towards SI form, and the morpho-phonological variation in Chapter 4 shows the predominance of Javanese influenced variant.

The results from the function words in Chapter Two and Three show that the adoption from SI (H) to JI (L) occurs at the phonological level (final [-a] and [Ø]). On the other hand, the findings in Chapter Four show that in the morpho-phonological domain, the influence of SI (H), in the form of [məN-], on JI (L) is quite restricted.[44] The influence of Javanese, in the form of assimilation, on JI (L) takes place instead. This leads us to wonder if the influence of (H) on (L) is less likely to occur at the morpho-phonological level, but more likely to occur at the phonological level. This question should be investigated in further research.

Another common outcome of language contact is language shift, as also discussed in Chapter One. The shift is when the JI speakers shifted away from parents' homeland vernacular. Instead of picking up Betawi as the vernacular, they form a new vernacular (JI) through a process of contact between Betawi and SI. Therefore, a new emerging variety, as another outcome of language contact, is shown in this study.

Thus far, we have identified the two outcomes of linguistic contact that have been shown in this study. The first one is change that clearly involves the influence of SI form. In addition, there are shift such as increased use of assimilation over [ŋə-] that are independent of the influence of SI. A comprehensive study of these complex outcomes that interact with one another can successfully be achieved in multilingual

[44] It should be noted that pre-adolescent speakers showed a marked increase in the use of [məN-] prefix, and that maybe indicative of a movement of [məN-] into L style or it is losing its feeling of formality.

settings. Unfortunately, previous studies in multilingual communities are still very limited compared to those conducted in monolingual Western communities (Ravinandrath, 2015). My current study, which is conducted in a complex multilingual setting, has enriched our understanding of how we study the outcomes of linguistic contact through current patterns of variation.

Most importantly, in examining the patterns of variation, we need to carefully consider if the variation found is conditioned by linguistic or non-linguistic (social) factors. As discussed in Chapter One, the issue of these conditioning factors is one of the central debates in the study of language contact (Ravinandrath, 2015). My study shows patterns of variation conditioned by social factors, namely, gender and education. Here, the outcomes (change and shift) identified through the patterns of variation are primarily conditioned by gender and education. As pointed out by Mufwene (2002), the adaptation to the speakers' socio-economic ecologies is a key driving force that triggers the outcomes. In JI case, the speakers' adaptive response for their survival in a new socio-economic ecology is shown in the patterns of variation that exhibit the outcomes of contact between Betawi and SI: linguistic shift, linguistic change, and the emerging of a new variety, called Jakarta Indonesian.

5.4. Further directions

There are a number of important directions for further study. Future investigation on other linguistic variables in JI is needed to see if the results we have in this study are also applied to other variables. This would allow us to see if the degree to which different variables are used to indicate similar socio-indexical effects. Do other variables work the same ways? For example, the patterns of use of high vowels [i] ~ [ɪ] and [u] ~ [ʊ], corresponding to SI non-alternated form [i] and [u] respectively. Wallace (1976) reported that Betawi and JI had three forms: [bəli] ~ [bəliʔ] ~ [bəlɪʔ]

‘buy’, and SI has only [bəli]. Impressionistically, I have never heard lax vowels in closed final syllable in present-day JI. This might be another case of SI influence on JI. To investigate it further, we need to conduct an acoustic study on the vowel quality based on Gil et al.’s (2015) available corpora.

Another potential future research is an investigation on the patterns of use of [h-] ~ [Ø] and [s-] ~ [Ø] in word-initial position, correspond to SI [h-] and [s-] in word-initial position respectively. For [h-] ~ [Ø], the pattern of variation is found in words like [hitam] (SI) ~ [itəm] (Betawi) ‘black’, and [hujan] (SI) ~ [ujan] (Betawi) ‘rain’. The use of [s-] ~ [Ø] can be found in [sudah] (SI) ~ [udah] (Betawi) ‘already’, [sama] (SI) ~ [ama] (Betawi) ‘with’. For this case, we need to observe thoroughly each lexical item that has variation of [h-] ~ [Ø] or [s-] ~ [Ø] to see if we could find lexical or social factors that induce the variation.

In 5.3, we wonder if the influence of (H) on (L) is less likely to occur at the morpho-phonological level than at the phonological level. To answer this, we need to further study the morphological and syntactic variables in the corpora. Parallel with this study, I conducted a preliminary morpho-syntactic investigation on these corpora (Kurniawan, 2015; presented at NWAV 44). I found that in terms of sentence structure, at least some aspects of Jakarta Indonesian are faithfully transmitted across three generations. For example, the distribution of active voice, passive voice, and passive type two do not change across these three generations. This might suggest that word-sentence patterns might be more resistant to change than sound patterns. In addition, we need to study other suffixes such as *-in, -kan, ber-*, etc., to observe the patterns of use across generations.

Another aspect that we need to observe is the ethnic background of individual speakers’ parents. It is important to see how the local vernaculars of the parents, or grandparents and other relatives, who lived together with the speakers, especially

during speakers' childhood, affect the patterns of variation. For example, speakers whose parents are from Java or Bali, or any islands that are geographically close to the nation's capital (Abtahian et al., 2016 termed them as 'inner islands'), perhaps absorb SI better than speakers whose parents are from outer islands (outside of Java and Bali). To achieve this, the analysis and the results should be analyzed by speaker background so that we can observe if the percentage of the variants under investigation are in fact conditioned by speakers' ethnic background. Specifically to the Javanese variant (nasal assimilation), we should see if speakers with the Javanese background produce the variant with nasal assimilation more than speakers with the non-Javanese background.

As discussed in Chapter One, SI, since its early development, has been in contact with local varieties in almost all regions in Indonesia. This contact creates new regional varieties of Indonesian. JI is an example of a new emerging local variety of Indonesian, and this study offers a model of how we can identify the contact and process of emergence using evidence from actual language use.

Sneddon (2006), as cited in Chapter One, reported that the descriptions of the local varieties of Indonesian are still very limited. Therefore, more research on documentation of these local varieties is still needed so that we may understand better the process of the development of the new varieties of Indonesian that emerged through contact between SI and the local languages.

As noted by Sneddon (2006), JI might be widely influential throughout the archipelago. As a basilectal and colloquial variety that originally developed locally in Jakarta, the rapid spread of JI nationwide due to the rise of its prestige is an interesting phenomenon. In agreement with Sneddon, Conners (2016) reported that the spread of JI through recent internet use, especially social media, is happening rapidly nowadays. He reported that JI coexists with SI, local varieties of Indonesian, and local languages.

As an example, he mentioned a recent internet user from Papua who uses JI features, such as *bareng* 'together', *kita* '1PL.INCL[45],' and *ngumpul* 'gather' together with Papuan features, such as *kam* '2PL[46],' *sio* 'an exclamation,' *baku* 'reciprocal marker.' Based on this evidence, the influence of JI on spontaneous speech in local varieties of Indonesian is of potential interest for further research. It is important to examine the linguistic variants that are specific to JI used side by side with the local variants in naturalistic settings. The results may allow us to observe if JI (together with SI) also contributes to the direction of language change in progress in the emerging local varieties of Indonesian throughout Indonesia.

[45] First-person plural inclusive pronoun.
[46] Second-plural pronoun.

APPENDIX A

Table A.1: Final [-ʔ], [-h], and [Ø] (by words) produced by pre-adolescent male speakers.

Phrase-final by pre-adolescent male speakers (parents of lower educational background)							
Word form	[-ʔ]	[-h]	[ø]	Total	[-ʔ]	[-h]	[ø]
lagi	1	0	0	1	100%	0%	0%
iya (ya)	4	1	0	5	80%	20%	0%
ya (question tag)	0	2	7	9	0%	22%	78%
itu (tu, tuh)	0	1	4	5	0%	20%	80%
ini (ni, nih)	0	1	5	6	0%	17%	83%
Phrase-final by pre-adolescent female speakers (parents of lower educational background							
Word forms	[-ʔ]	[-h]	[ø]	Total	[-ʔ]	[-h]	[ø]
lagi	0	1	1	2	0%	50%	50%
nya	0	5	3	8	0%	63%	38%
jadi	1	0	0	1	100%	0%	0%
ya (question tag)	0	3	2	5	0%	60%	40%
itu (tu)	0	3	1	4	0%	75%	25%
ini (ni)	0	6	0	6	0%	100%	0%

APPENDIX B

Table B.1: The variants with nasal assimilation and [ŋə-] produced by male adult speakers in the 2000s corpus

	Assimilation	[ŋə-]	Total	Percentage of assimilation
m-b	25			40%
ŋə-b		37	62	60%
n-d	21			51%
ŋə-d		20	41	49%
n-d͡ʒ	14			47%
ŋə-d͡ʒ		16	30	53%
ŋ-g	48			80%
ŋə-g		12	60	20%
Total	108	85	193	
Percentage	56%	44%		

Table B.2: The variants with nasal assimilation and [ŋə-] produced by female adult speakers in the 2000s corpus

	Assimilation	[ŋə-]	Total	Percentage of assimilation
m-b	76			84%
ŋə-b		15	91	16%
n-d	19			76%
ŋə-d		6	25	24%
n-d͡ʒ	41			89%
ŋə-d͡ʒ		5	46	11%
ŋ-g	163			89%
ŋəg		20	183	11%
Total	299	46	345	
Percentage	87%	13%		

Table B.3: The variants with nasal assimilation and [ŋə-] produced by female adult speakers of lower educational background in the 2000s Corpus

	Assimilation	[ŋə-]	Total	Percentage of assimilation
m-b	27			87%
ŋə-b		4	31	13%
n-d	13			87%
ŋə-d		2	15	13%
n-dʑ	23			92%
ŋə-dʑ		2	25	8%
ŋ-g	40			98%
ŋə-g		1	41	2%
Total	63	8	71	
Percentage	89%	11%		

Table B.4: The variants with nasal assimilation and [ŋə-] produced by female adult speakers of higher educational background in the 2000s Corpus

	Assimilation	[ŋə-]	Total	Percentage of assimilation
m-b	49			82%
ŋə-b		11	60	18%
n-d	6			60%
ŋə-d		4	10	40%
n-dʑ	23			88%
ŋə-dʑ		3	26	12%
ŋ-g	123			87%
ŋə-g		19	142	13%
Total	201	37	238	
Percentage	84%	16%		

Table B.5: The variants with nasal assimilation and [ŋə-] produced by male adult speakers of lower educational background in the 2000s Corpus

	Assimilation	[ŋə-]	Total	Percentage of assimilation
m-b	6			23%
ŋə-b		20	26	77%
n-d	7			37%
ŋə-d		12	19	63%
n-dʑ	1			9%
ŋə-dʑ		10	11	91%
ŋ-g	2			33%
ŋə-g		4	6	67%
Total	16	46	62	
Percentage	26%	74%		

Table B.6: The variants with nasal assimilation and [ŋə-] produced by male adult speakers of higher educational background in the 2000s Corpus

	Assimilation	[ŋə-]	Total	Percentage of assimilation
m-b	19			53%
ŋə-b		17	36	47%
n-d	14			64%
ŋə-d		8	22	36%
n-dʑ	13			68%
ŋə-dʑ		6	19	32%
ŋ-g	46			85%
ŋə-g		8	54	15%
Total	92	39	131	
Percentage	70%	30%		

Table B.7: The variants with nasal assimilation and [ŋə-] produced in Experiment 1

Speakers	Assimilation	[ŋə-]	Total	Percentages of assimilation
M-S7	96	0	96	100%
F-S3	34	55	89	38%
F-S2	21	45	66	32%
F-S6	16	61	77	21%
M-S4	7	69	76	9%
F-S8	4	67	71	6%
F-S5	3	77	80	4%
M-S1	2	63	65	3%

Table B.8: Production of Nasal assimilation and boxplot analysis by gender and educational background in Experiment 2

Assimilation	Male-Lower	Male-Higher	Female-Lower	Female-Higher
m-b	35	13	26	23
n-d	26	11	27	13
n-dʑ	29	11	16	12
ŋ-g	35	19	16	34
	Male-Lower	Male-Higher	Female-Lower	Female-Higher
Min	26	11	16	12
Q1	28.25	11	16	12.75
Average	31.25	13.5	21.25	20.5
Q3	35	14.5	26.25	25.75
Max	35	19	27	34
Box 1 - hidden	28.25	11	16	12.75
Box 2 - lower	3	2.5	5.25	7.75
Box 3 - upper	3.75	1	5	5.25
Whisker Top	0	4.5	0.75	8.25
Whisker Bottom	2.25	0	0	0.75
	bare verbs	assimilation	[ŋə-]	məN-

Table B.9: Four variants of nasal prefix produced by twenty-one speakers in the 1970s

bare verbs	assimilation	[ŋə-]	məN-	Total
81	21	18	8	128
63%	16%	14%	6%	

Appendix C

Experiment Script

Instruksi:
Kamu bakalan denger beberapa kalimat. Kalimat-kalimat itu adalah contoh percakapan santai sehari-hari. Kalimat tersebut adalah kalimat pasif. Tau kan kalimat pasif keyek di pelajaran sekolah? Contohnya keyek *diambil, dimakan, dijual, dikejar*, dsb. Tugas kamu adalah merubah kalimat pasif itu jadi kalimat aktif. Pake gaya bahasa sehari-hari aja. Keyek kamu kalo lagi omong santai sama temen deket kamu aja. Nggak perlu pake Bahasa Indonesia yang baik dan benar.
Nah, sekarang kamu bakal denger contoh-contoh kalimat pasif tersebut dan gimana kamu nantinya bakal ucapin kalimat aktif. Si cowok bakal ucapin kalimat pasifnya terus si ceweknya bakal ucapin kalimat aktifnya setelah bunyi 'bip'. Ok? Yuk kita mulai!

Instruction:
You will listen to several sentences. The sentences are examples of daily conversation in relax situation. The sentences are passive sentences. Do you know passive sentences like in school lesson? The examples are like ***diambil, dimakan, dijual, dikejar****, etc. Your task is to change those passive sentences into active sentences. Just use your daily conversation style. It is just like you talk to your close friends in a relax situation. You don't have tou use the correct standard Indonesian.*
Well, now you will listen to the examples of the passive sentences and how you will say the active sentences. The male voice will say the passive sentence and the female will say the active sentence after 'beep' sound. Okay? Let's start!

Pre-training

1. Male (M): Dodi <u>ditangisin</u> pacarnya

   Female (F): pacarnya <u>nangisin</u> Dodi
   Male: Dodi caused his girlfriend to cry (lit. Dodi is cried by his girlfriend)
   Female: his girlfriend cried because Dodi

2. M: rumput liar itu <u>dipotongin</u> Pak Heri
   F: Pak Heri <u>motongin</u> rumput liar itu

   M: Mr. Heri cut the weed.
   F: the weed was cut by Mr. Heri

3. M: Grup A <u>dikalahin</u> Grup B
   F: Grup B <u>ngalahin</u> Grup A

   M: Group A was defeated by Group B
   F: Group B defeated Group A

4. M: anak nakal itu dipikirin orangtuanya
   F: orangtuanya mikirin anak nakal itu

   M: that naughty kid caused concern to his/her parent (lit. That naughty boy was thought by his/her parent)
   F: his/her parent thought about that naughty kid

5. M: air teh itu ditumpahin dia
   F: dia numpahin air teh itu

   M: he caused the tea to spill
   F: he spilled the tea

6. M: utangnya ditalangin Pak Lurah
   F: Pak Lurah nalangin utangnya

   M: His debt was bailed out by village headman
   F: village headman bailed out his debt

Instruksi:
Nah sekarang tugas kamu adalah ngucapin kalimat aktif keyek yang udah diucapin sama suara cewek di atas. Ucapin suaramu setelah kamu denger suara 'bip'.

Instruction:
Now your task is to say the active sentences like the ones that were uttered by the female voice. Please say it after the 'beep' sound

Training:
1. Male (M): buku itu dipulangin Ujang
   Response (R):

   Male (M): that book was returned by Ujang
   R:

2. M: Ardi dikunjungin Budi kemaren
   R:

   M: Ardi was visited by Budi yesterday
   R:

3. M: soal itu udah diterangin Bu Guru
   R:

M: *that exercise was explained by teacher*
R:

4. M: lantai ruang tamu dikotorin Gogon
R:

M: *Gogon caused the the floor in the living room to get dirty*
R:

5. M: Indah dipacarin Romi
R:

M: *Romi is dating Indah (lit. Indah is being dated by Romi)*
R:

6. M: pohon di halaman ditebangin Pak Rahmat
R:

M: *the tree in the yard was cut by Mr. Rahmat*
R:

7. M: aernya udah dipanasin Tono
R:

M: *Tono caused the water to heat up*
R:

8. M: rumahnya udah ditempatin orang baru itu
R:

M: *the house is occupied by new people*
R:

9. M: bawang itu udah dikupasin Ari
R:

M: *that onion is peeled by Ari*
R:

Test 1

1. M: warung-warung liar itu dibongkarin satpol PP tadi malem
   R:

   M: those stalls were demolished by PP police unit last night
   R:

2. M: Tina dideketin Eko
   R:

   M: Tina was approached by Eko
   R:

3. M: sampah itu dibuangin Indro ke kali
   R:

   M: the trash was thrown away by Indro to the river
   R:

4. M: sayur itu udah digaremin Tini
   R:

   M: salt was put into the vegetable by Tini
   R:

5. M: Rani dibikinin mobilan ama Joni
   R:

   M: lit. a toy car was made by Joni for Rani
   R:

6. M: tiket itu dijualin ama Sinta.
   R:

   M: those tickets were sold by Sinta
   R:

7. M: Hamid dibeliin rumah ama mertuanya.
   R:

M: *lit. A house was bought by Hamid's father in law for him*
R:

8. M: pos Hansip itu didiriin warga
R:

M: *that security post was bulit by people*
R:

9. M: PRnya dia dijawabin Tina
R:

M: *his homework was answered by Tina*
R:

10. M: angkot mogok itu diderek truk sampah
R:

M: *The public transportation which was broken down was towed by a garbage truck*
R:

11. M: meja-meja di ruang tamu udah digeserin Tomi tadi malem.
R:

M: *The tables in the living room were moved by Tomi last night*
R:

12. M: rumah itu didobrak polisi
R:

M: *the door of the house was broken down by police*
R:

Distracter:
M: *Pak Karman dipanggil Bossnya*
R:

13. M: ikan itu udah digorengin Rini tadi pagi
R:

M: *that fish was fried by Tini this morning*
R:

14. M: tempat tidur itu udah diberesin Sahroni
R:

M: *that bed was already neaten up by Sahroni*
R:

15. M: baju ama celananya udah digosokin mbak Ipah
R:

M: *the pants and shirts were ironed by Ipah*
R:

16. M: berlian itu dijagain Hansip dua puluh empat jam
R:

M: *that diamond was guarded by security twenty four hours*
R:

17. M: uang itu udah dibalikin Toni
R:

M: *that money was returned by Toni*
R:

18. M: batu itu dijatohin ama Lina dari atas
R:

M: *the rock was dropped by Lina from upthere*
R:

19. M: Amat dibotakin tukang cukur
R:

M: *Amat was shaved bald by the barber*
R:

20. M: ikan di dapur itu digigitin tikus
R:

M: the fish in the kitchen was bitten by mouse
R:

21. M: Romi dibantuin Adi
R:

M: Romi was helped by Adi
R:

22. M: volume radionya digedein Diki
R:

M: The radio volume was turned up by Diki
R:

23. M: gembok yang macet tadi udah dibukain Mas Karno
R:

M: the padlock that does not work was already opened by Karno
R:

24. M: pemerintah korup itu akhirnya digulingin rakyat
R:

M: that corrupt government finally was overthrown by people
R:

Distracter:
M: layangan itu diterbangin Anwar
R:

25. M: Soni dibangunin mamanya tadi pagi
R:

M: Mom woke Soni up this morning (lit. Soni was waken up by his mom)

R:

26. M: kertas itu diguntingin Dodi
R:

M: That paper was cut by Dodi
R:

27. M: aku udah didukunin Romi
R:

M: I was put under sorcerer's spell by Romi
R:

28. M: keranjang berat itu dibawain tukang panggul
R:

M: that heavy basket was carried by handyman
R:

29. M: Feri didaftarin orang tuanya masuk TK
R:

M: Feri was registered by his parents to enter kindergarten
R:

30. M: vokalis itu digitarin Sarah
R:

M: guitar was played by Sarah for the vocalist
R:

31. M: PR itu udah dijelasin pak guru
R:

M: that homework was already explained by teacher
R:

32. M: gedung parlemen itu didudukin mahasiswa
R:

M: *that parliament building was occupied by university students*
R:

33. M: Rani dijanjiin Dodi liburan ke Bali
R:

M: *holiday to Bali was promised by Dodi to Rani*
R:

34. M: wanita hamil diduluin petugas busway
R:

M: *pregnant woman is prioritized by busway officer*
R:

35. M: denah rumah itu digambarin Rojali
R:

M: *the house layout was drawn by Rojali*
R:

36. M: buah mangganya didinginin Chandra di kulkas
R:

M: *the mango was made cold in the refrigerator by Chandra*
R:

Distracter:
M: *lemari itu dikosongin Tini*
R:

37. M: Andi dijemput Yanti
R:

M: *Andi was picked up by Yanti*
R:

38. M: rumah itu didatengin polisi
R:

M: *that house was visited by police*
R:

39. M: guru yang gak masuk itu digantiin guru piket
R:

M: *that teacher who is absent was replaced by the teacher of the guard.*
R:

40. M: Neneng dijodohin orang tuanya
R:

M: *Neneng was matched by her parents*
R:

41. M: band rock itu didewain orang sekampung
R:

M: *that rock band was adored by all people in the village*
R:

42. M: Badu dijorokin Rita ampe jatoh
R:

M: *Badu was pushed by Rita until he fell down*
R:

43. M: Roni digosipin Gita
R:

M: *Roni was gossiped about by Gita*
R:

44. M: Riri dijutekin Bobi
R:

M: *Riri was put in bad mood by Bobi*
R:

45. M: sepedanya udah dibenerin Rahmat
R:

M: the bicycle was already fixed by Rahmat
R:

46. M: Teguh dijudesin Jarwo
R:

M: Teguh was put in bad mood by Jarwo
R:

47. M: Ayu didandanin Asep
R:

M: Ayu was dressed up by Asep
R:

48. M: singa itu udah dijinakin Robi
R:

M: that lion was already domisticated by Robi
R:

Distracter:
M: Sepeda itu dipulangin Rino
R:

Test 2 (repetition: the same words as test 1 but in different sentences)

49. M: rumah tua itu udah dibongkarin Pak Kadir kemaren
R:

M: that old house was demolished by Mr. Kadir yesterday
R:

50. M: murid baru di kelas itu dideketin Rudi
R:

M: that new student in the class was approached by Rudi
R:

51. M: Hamid dibeliin sate Padang ama Amir
R:

M: Padang satay was bought by Amir for Hamid
R:

52. M: Idris dijudesin Paijo
R:

M: Idris was put in a bad mood by Paijo
R:

53. M: baju leceknya udah digosokin Mbak Tinah
R:

M: that wrinkle clothes were already ironed by Tinah
R:

54. M: organisasi itu didiriin mahasiswa
R:

M: that organization was established by the university student
R:

55. M: mainan yang udah lama dibuangin Dodi ke tempat sampah
R:

M: the old toys were thrown away by Dodi to the garbage
R:

56. M: delman kerajaan itu diderek kuda putih
R:

M: The royal wagon was towed by white horse
R:

57. M: ikan itu udah digaremin Riri
R:

M: *salt was put onto that fish by Riri*
R:

58. M: pintu gerbang itu didobrak rampok
R:

M: *the main gate was broken open by rampok*
R:

59. M: masalah itu udah diberesin Bang Ali
R:

M: *that problem was handled by Ali*
R:

60. M: kursi-kursi buat undangan udah digeserin Pak Jarwo tadi pagi
R:

M: *the chairs for the guests were already moved by Mr. Jarwo this morning*
R:

Distracter:

M: *orang sakit itu ditolongin tetangganya*
R:

61. M: rumahnya dijagain anjing herder.
R:

M: *his house was guarded by a herder dog*
R:

62. M: tempe yang enak itu digorengin Bu Jali tadi siang
R:

M: *that delicious tempe was fried by Mrs. Jali this afternoon*
R:

63. M: tugas kuliahnya dijawabin kakaknya
R:

M: His college assignment was answered by his older brother
R:

64. M: rambut gondrongnya Robert dibotakin Pak Guru
R:

M: Robert's long hair was cut baldly by the teacher
R:

65. M: pemimpin yang nggak bener pasti dijatohin rakyat.
R:

M: bad leader must be put down by people
R:

66. M: buku itu udah dibalikin Jaya ke perpustakaan
R:

M: that book was returned by Jaya to the library
R:

67. M: barang bekas itu dijualin ama Robi ke pasar loak.
R:

M: that used stuff was sold by Robi to the flea market
R:

68. M: pola baju itu digambarin Mas Kardi
R:

M: The pattern on that clothes was drawn by Arman
R:

69. M: murid yang tidur di kelas itu dibangunin Pak guru
R:

M: The student who was sleeping in the class was woken up by the teacher
R:

70. M: Vina didaftarin orang tuanya ikut lomba nyanyi
R:

M: Vina was registered by her parent to join singing competition
R:

71. M: Rudi dibantuin Tino
R:

M: Rudi was helped by Tino
R:

72. M: truk itu digulingin warga yang marah
R:

M: That truck was overturned by angry people
R:

Distracter:

M: gajinya dikurangin bossnya
R:

73. M: beberapa lagu lawas dibawain ama penyanyi itu
R:

M: a few old song was performed by the singer
R:

74. M: aku udah diduluin dia
R:

M: I was passed by him
R:

75. M: api di kompor digedein Yani
R:

M: The fire on the stove was turned up by Yani
R:

76. M: persoalan itu udah dijelasin Pak RT
R:

M: that problem was explained by Mr. RT
R:

77. M: Ita digigitin nyamuk
R:

M: Ita was bitten by mosquitos
R:

78. M: balon itu nggak sengaja didudukin Supri
R:

M: that baloon was accidently sat on by Supri
R:

79. M: prakarya itu diguntingin Dodi
R:

M: that handicraft was cut by Dodi
R:

80. M: Faris dijanjiin ibunya sepeda baru
R:

M: Faris was promised a new bicycle by his mother
R:

81. M: air yang panas itu udah didinginin Desi
R:

M: that hot water was made cold by Desi
R:

82. M: komputernya udah dibenerin Mas Joni
R:

M: *the computer was fixed by Joni*
R:

83. M: Riri dijemput Tika di sekolah
R:

M: *Riri was picked up by Tika at school*
R:

84. M: artis itu didewain semua anak muda
R:

M: *That artist was adored by all young people*
R:

85. M: dia digosipin temen-temen sekampus
R:

M: *she was gossiped by her friends in campus*
R:

86. M: penganten itu didandanin Bu Yayuk
R:

M: *that bride was dressed up by Mrs. Yayuk*
R:

87. M: ular itu udah dijinakin Pak Hadi
R:

M: *That snake was domisticated by Mr. Hadi*
R:

88. M: dia didatengin hantu itu
R:

M: *He was visited by that ghost*
R:

89. M: Tamu itu dibikinin kopi ama Ayu

R:

M: coffee was served by Ayu for that guest
R:

90. M: Rama dijodohin pamannya
R:

M: Rama was matched by his uncle
R:

91. M: karyawan yang keluar itu digantiin karyawan baru
R:

M: The employee who resigned was replaced by the new employee
R:

92. M: Rudi dijorokin Heru ke selokan
R:

M: Rudi was pushed by Heru to the gutter
R:

93. M: pintunya udah dibukain Jaya
R:

M: the door was opened by Jaya
R:

94. M: dia didukunin Ari
R:

M: he was put under sorcerer's spell by Ari
R:

95. M: udah dua minggu Hamid dijutekin Kiki
R:

M: Hamid was put in a bad mood by Kiki since two weeks ago
R:

96. M: Ruth Sahanaya digitarin Andi
R:

M: guitar was played by Andi for Ruth Sahanaya .

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